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NARRATIVE SOCIAL STRUCTURE

ANATOMY OF THE HADITH TRANSMISSION NETWORK, CE 610-1505

Recep Şentürk

Submitted
in partial fulfillment of the requirements
for the degree of
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in the Graduate School of Arts and Sciences

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ABSTRACT

Narrative Social Structure:
Anatomy of the Hadith Transmission Network, CE 610-1505

Recep Şentürk

This work shows how a social organization might also be treated as a discourse network diachronically produced by a synergy between social and discursive structures. It contributes to recent efforts in bridging the gap between discursive and social structures on the one hand, and synchronic and diachronic structures on the other, by demonstrating how speech and social action can be conjoined on the diachronic axis. It asserts that there exist discursive and temporal constraints on social action. In particular, discursive actions of individual and aggregate social actors implicitly shape their social networks with observable consequences on their authority. Metalinguistic tools are employed to detect and analyze these processes. Patterns in crossectional networks, characterized by synchronic relations among peers from the same generation, are comparatively analyzed with patterns in cross-temporal networks, characterized by diachronic relations among consecutive generations.

This perspective is employed to analyze who gains more authority in the longest recorded social network through time known to us (CE 610-1505), namely the transmission network of hadith of the Prophet Muhammad (CE 571-632). Hadith is the second source of Islam after the Koran and revered by Muslims all over the world. A hadith can be defined as a brief disjointed narrative about the Prophet of Islam transmitted orally and in writing by successive generations. Comparative analysis of

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synchronic and diachronic connections in the network of over 26 generations of scholars of hadith revealed that outward or diachronic connections are responsible for authority formation among the most prominent scholars of hadith. These scholars are commonly known as hafiz (pl. huffaz).

This finding indicates that a generation of prominent scholars is thinly connected to itself while it is thickly connected to adjacent generations. Peer avoidance in a discourse network is attributed to the effect of levels of reported speech. It is commonly observable that social actors attempt to reduce levels of reported speech in their discourse by reporting it from the closest node to the original source—as much as social and temporal constraints permit—even if the content of the report is going to be deemed as accurate otherwise. They as such inadvertently eliminate some discourse mediators from their network while simultaneously according more authority upon others.

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To
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Chapter 1

Introduction

THE GAP BETWEEN LITERARY AND SOCIAL STRUCTURALISM

This chapter is an introduction to the present study. It briefly outlines the theoretical framework, the research site, the data, the methods employed, and the analysis undertaken as well as some of the main findings.

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"A man's mirror is his actions, not his words," reads a line in a poem by a 19th century Turkish poet, Ziya Pasha. This line simply reflects the worldwide popular view that makes a distinction between actions and words while privileging the former over the latter. The justification for such a view comes in the second line of the couplet, "For the level of one's intelligence is reflected in his work." Sociological theory with varying strands has, since its inception, also internalized this prevalent paradigm. It has grounded itself on a distinction between social action and discourse, giving priority to the former over the latter, if not exclusively focusing on the former. By doing so, sociologists left the words to human scientists and linguists.

Yet, recently this conventional division of labor based on the aforementioned distinction has come under attack and begun to erode (Habermas, White). This work also contributes to this process by arguing that words and deeds are ineluctably interrelated and jointly construct social structures. More specifically, it aims to bridge two gaps: (1) the gap between discursive and social structures, on the one hand, and (2) the gap between synchronic and diachronic structures (Saussure), on the other. The two goals of this project are intrinsically related to each other because conjoining words and deeds or discursive and social patterns, I argue along with Saussure, must be on diachronic axis.

Initial steps have already been taken towards the realization of the first goal of the project by Habermas and White. Although the founding fathers of sociology completely neglected the discursive dimension of social action, successive generations of sociologists increasingly realized the inseparability of discursive and social processes. The second generation of sociologists (Parsons) could no longer ignore discourse and incorporated it in their analysis but only as an epiphenomenon. Today, the new

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generation of sociologists increasingly recognizes the inseparability of both structures (Habermas, White, Abbott, Goffman, Bourdieu, Wuthnow, Labov). This study also argues for a reciprocal relationship between discursive and social patterns, which jointly produce social organization.

As to the second goal of the project, much need to be done because diachronic structures have long been ignored and the promise of structuralism in this regard has yet to be fulfilled, although almost a century has passed since its first formalization in the work of Saussure. Saussure proposed two types of structures on the time axis: synchronic and diachronic. He also proposed two other types of structures on the analytical-level axis: micro and macro. The matrix produced by these four dimensions summarizes Saussure's strategy about structural query. Structuralists from human and social sciences have, for the most part, neglected the diachronic structures and concentrated on the analytical-level axis. Presently, however, any attempt to couple discursive and social patterns, needs to take into consideration the temporal constraints involved in discursive and social action. The *synchronic* approach in the analysis of social and discursive actions is based on a hypothetical and inauthentic concept of social process because both social and discursive actions are embedded within temporal structures that can be ignored only with a high cost. This study aims to highlight and analyze the temporal constraints, first mentioned by Saussure, on discursive and social action.

With the purpose of bridging this gap and coupling the structures in speech and action, I extend the query for structures in the discursive and social processes to the persistent patterns in their ceaseless interaction. I argue in this study that without an

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uninterrupted synergy between discursive and social structures, daily social life would be impossible to imagine. Using these patterns in the interface, I offer a new explanation, on the macro and micro level, for the formation of authority in a discourse network through time, namely the hadith transmission network of Prophet Muhammad (571-632 CE), the longest recorded social network ever known to us. More specifically, the question this work revolves around is why some social actors, aggregate/corporate or individual gain more authority than others?

In the analysis of this cross-temporal social network, I use, after proper modification, the social network analysis concepts and methods originally developed for the analysis of cross-sectional social networks. In the course of doing that, I also extend the application of the current synchronic social networks analysis methods to diachronic social networks. Presently, social network analysis concentrates primarily on synchronic structures using cross-sectional data. In turn, I relate my findings to the research on crossectional social networks or social organizations in general. By doing this, my purpose is to demonstrate how the study of cross-sectional and cross-temporal networks can mutually breed each other.

I also maintain that the structuralist queries in discursive and social fields can mutually foster each other. The searches for patterns in discursive and social mechanisms have long been carried out in isolation from each other, and the relationship between them has until recently been ignored. Yet, recently, the gap between two strands of structuralist query has increasingly become noticeable in both sides. I claim this territory for myself and argue that social behavior can be better explained and predicted by

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employing an approach that explores the interaction between social and discursive patterns.

The empirical evidence from the analysis of the hadith transmission network of Prophet Muhammad substantiates this claim. A hadith is a brief disjointed narrative about Prophet Muhammad transmitted orally and in writing through an extensively recorded network across layers[1]. Being the longest of its kind in existence, the data about the hadith transmission network—with 26 layers and a lengthy history from 610 to 1505, serves to explore authority formation in a cross-temporal network. Its analysis shows that inter-layer brokerage (ILB effect) and levels of reported speech (LRS effect) work together uninterruptedly, on the macro and micro levels, to shape the social network and the behavior of the individual and aggregate/corporate social actors. These findings confirm the old structural tenet that the structural position determines social behavior (Merton, Burt, White). Structural positions, however, are not merely products of atemporal social relations; rather they are constructed temporally through discursive action.

Discursive action manifests itself in narrative or stories in countless types and lengths, implicitly assumed or actually told--entirely or in part. This study pays a special attention to the relationship between discourse and narrative (Chatman). My approach to narrative in this study is *external*; I do not attempt to interpret the content of the narrative. Nor do I analyze how narrative has been interpreted and used in variable ways. Instead, I

---

[1] "Hadith (narrative, talk) with the definite article (al-hadith) is used for Tradition, being an account of what the Prophet said, or did, or of his tacit approval of something said or done in his presence" (Robson, "Hadith" in *Encyclopedia of Islam*). See also Librande (*Encyclopedia of Religion,* vol. 6, pp. 143-151), El Calamawy. For a classical source, see Ibn Salah's *al-Muqaddimah,* or Robson (Arabic text with translation) (1953). For a bibliographical work on hadith studies in European languages, see Anees (1993).

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analyze the relation of narrative with the social network to which it gives life and form, and through which it survives and disseminates, as well. This approach concentrates more on the conditions that are vital for meaning to be possible. In line with this view, my interest is not in the sole conventional question about what narrative means or reflects, but in what narrative socially does. The former question is based on the traditional referential approach to language use which conceives language only as a means of communication. However, this traditional referential paradigm has been recently expanded to other aspects of language use as well. Among them is the role of language use and discursive practices in establishing and maintaining social relations.

I maintain here that there are persistent patterns conceivable to us in social and discursive processes, and in their interaction. These patterns are called structures. There has been a long tradition of query for such patterns in human (e.g. Saussere, Bakhtin, Barthes, Lucy, Silverstein) and social sciences (e.g. Weber, Marx, Durkheim, Simmel, Merton, White, Burt). In the structural tradition, the explanation lies in the patterns of interrelations between the elements of an organization, discursive or social, micro or macro, synchronic or diachronic. I cross-fertilize these currently isolated structuralist traditions from linguistics, humanities and social sciences and bring the recent developments in these fields to bear upon each other. From this perspective, I suggest in the following chapters that not only the relations *within* the discursive and social processes--uncoupled from each other, but also the interrelations *between* them should be a subject for the structuralist query. I thus claim for myself the unexplored territory that lies in between the traditionally well-established intellectual borders of human and social sciences.

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In line with this view, this study empirically demonstrates how metalanguage implicitly configures our social networks whether we are aggregate/corporate or individual social actors. I have found that not only is a layer thinly connected to itself but it is thickly connected to past and future layers also. Only less than 3 % of the total receiving connections--or teacher ties--are to the peers from the same layer. In contrast, more than 97 % of the ties are to the earlier and later layers. These patterns, which I have analyzed here, persisted over nine centuries. From a social network perspective, the role of the prominent scholars in the hadith transmission network can be characterized as inter-layer brokerage that brings them power. Yet, the reason why the prominent peers limit their connections to each other can be found in the discursive mechanisms involved in reported speech.

It is possible to observe the metalinguistic pattern I described above in everyday life. Even if the content is the same and the report is completely accurate, we still try to report the speech from the original source, but not from the secondary sources. The same pattern is observable in scholarly citations in academic discourse networks. In writing a dissertation, for instance, we are all expected to cite the original but not the secondary sources. There are firm social norms about reflexive speech. For example, it might be a terminal mistake for a student to get a citation from the paper of a classmate rather than from the original source. If reporting from the original source is impossible because of social and temporal constraints, then, we try to report speech from its closest source to the origin. The same simple and common logic that characterizes our talk every day lies behind what hadith transmitters did for centuries in a more systematic way. As we almost habitually try to manage the levels of reported speech, our social network gains its

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shape through an elusive process. We find ourselves embedded in a discourse network, a social system in which speech connects people to each other. I define discourse in this context as *interconnected speech*, which is closely linked to narrative.

There are conceptual and methodological impediments before this recent orientation. The problem this study tackles is the long ignored dynamics and mechanisms of the interplay between structures of action and signification. Conceptually, there is a gap to be bridged between social and literary structuralism. Methodologically, analytical tools have yet to be developed to explore the area between these two fields, although each field has developed tools to explore its own field.

Returning to the metaphor of Ziya Pasha, if words and actions are two mirrors used to reconstruct one's image on a conceptual level, we should find a way to overlay them together. If the present perspectives in sociology do not allow us to do so and force us to choose between words and deeds, then we have to built a new mirror that would reflect both words and deeds synchronically. Failing to imagine such a mirror was normal for Ziya Pasha, and for sociologists of his time, who lived before the advent of modern audio-visual technology. But today we know that it is possible to capture both words and actions at the same time.

Scholars from human and social sciences are also calling for a more integrated approach to language use and social action. Among them are Schotter, Silverstein, Burns (1977), Abbott (1988), White (1992, 1995), Bruner (1986, 1990), Deasan, Ferguson and Griswold (1988), Sewell (1992, 1994), Abrahamson and Fombrun (1994), Emirbayer and Goodwin (1994), Hart (1992), and Tilly (1995). From this perspective, narrative ceases to be the significant other of science, for science itself has its own rather empirical

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narrative (White 1973; Somers 1992, 1995; Levine 1995). These scholars acknowledged the mutual-influence-process and proposed causally reciprocal models, as opposed to earlier one-sided, reductionist and deterministic models. But how?

In answering this question, the present study focuses on the meta-patterns jointly produced by patterns taken from discursive and social action which have until recently been treated in isolation from each other by human and social scientists. Sociology of narrative, a newly emerging field, has reminded us of the inseparability of narrative and social action. Their interrelationship is not, however, straightforward. How do the two patterns work in interplay with each other in the construction, change, and perpetuation of social structures? This puzzle still remains unsolved completely.

Narrative Social Structure and Narrative/Discursive Capital

Narrative social structure should be understood as a discourse network where the authority of social actors is contingent upon their discursive or narrative capital. Discursive or narrative capital is produced through elusive social mechanisms and processes over which one can insert only a limited control. For the most part, it is jointly produced by human and social capital but cannot be reduced to any of them. As I will explain below, the production of discursive or narrative capital can be completely fortuitous as well (Below see eyewitness example). Narrative or discursive capital can be perceived as a measure of authority in a discourse network. The riddle this concept helps us answer is whose word will be heard? Whose narrative will gain social acceptance and be sought after?

Before returning shortly to this question in more detail, I also need to shed some light on the way the concepts of narrative, discourse and speech are used throughout this

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study. One can safely say that recently sociologists have developed a distinct approach to narrative (White, Somers, Levine). Unlike the human scientists who focus on the internal structure of narrative (Bal), sociologists concentrate on what makes narrative possible and in turn what narrative does socially. This study also follows the same perspective of narrative.

Narrative or the story is a particular type of discourse that reproduces in language what has taken place in the actual and/or imaginative world from the perspective of its teller. Narrative organizes and embeds events within a temporal order. It heavily relies on reflexive speech or metalanguage. In particular, reported speech plays a crucial role in narrative without which narrative would not be possible. The narrator has to report the speech of the actors in the event he is telling. Each reported speech, on the other hand, comes embedded within a narrative; otherwise one can barely make sense of a decontextualized reported speech (Silverstein, Lucy).

There is thus an intimate connection between reported speech and narrative. However, often times we assume the knowledge of the narrative and, thus, report the speech without retelling the complete story[2]. In daily life, additions and revisions of stories go on ceaselessly without retelling the complete story. Most stories thus go assumed in speech. If not, we tell only segments of it. Rarely, do we tell the complete story. It would have been very difficult for us, if we had to tell the complete story each

[2] This feature is strikingly observable in the way different parts of a hadith are selectively reported by different authorities. For instance, jurists frequently leave aside the story line and focus on the segment of hadith that they use in deriving rulings. One has to research various sources to reconstruct the complete story in which this type of de-contextualized hadith is embedded. This requires bringing together disjointed pieces from different classical sources. See al-Jarrahi's work for examples.

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time we reflexively talk about it. Instead, we conveniently refer-- as briefly as possible-- to the untold stories we commonly share with our interlocutors.

The power of a narrative is reflected in the metanarratives it reflexively inspires. Metanarrative is also narrative; yet, it is about other narratives. This study departs from the traditional monolithic and 'unilayered' image of linguistic and literary phenomena. Instead, it adopts a more dynamic view by exploring its multiple layers (language vs. metalanguage, pragmatics vs. metapragmatics, narrative vs. metanarrative) in constant interaction with each other.

Now we can return to the initial question asked above. Put differently, does discourse produce inequality and social stratification? If yes, how? I demonstrated in this study that a discourse network is characterized by social inequality which perpetuates over centuries through elusive mechanisms. Some narratives are socially more esteemed and authoritative than others. So are their producers and holders. The outcome is what is termed here a narrative social structure. A social actor can also be conceived as a narrator because our every day life is impossible without telling and re-telling stories of our own and those of others. Likewise, a social network can also be conceived of as a network of narrative as well because it is constructed and maintained through stories. In this study, I show how the levels of reported speech in the stories we tell and re-tell bring about and sustain social inequality in a discourse network.

For instance, according to the biographical dictionary of Dhahabi, a major historian of Islam from the 14th century, only 1176 scholars stood out among their

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colleagues as a hafiz[3] (the most prominent authority in the field of hadith, pl. huffaz) based on a selection from among approximately 40,000 renown figures in 21 layers. The ratio is less than 3 %. According to Suyuti, who came two centuries later, in the 16th century, the number of scholars who gained international public recognition as huffaz in 24 layers from the time of Prophet Muhammad until his time was only 1188. This shows how selective and competitive the process of intellectual stratification was. Some of these scholars, perhaps, did not even envision in their lifetime that their name would be included one day in the list of huffaz. They did the work and left the decision about themselves to the ever-evolving public view of the future generations. One's place in the network of huffaz is thus retrospectively established and re-established by later generations after his death.

Even more strikingly, among these highly noted scholars, only the work of six men gained an almost unanimous recognition to be enshrined as the Six Canonical Books of Hadith. The international public view, not a formal committee or a central institution, bestowed such authority on these works. We also have to remember the underdeveloped condition of the means of communication at the time, relative to present day technology which scholars employ. Nor was the making of this worldwide social recognition instantaneous; a stiff competition determined which books were to be considered more authoritative.

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[3]A note on the transliteration of Arabic words. In this work, which is primarily intended for the sociologists who, for the most part, are not familiar with the Arabic phonetic and transliteration system, I decided against using diacritical marks in the English spelling of Arabic words unless there is a certain confusion likely to arise. I will not italicize the word hadith (pl. ahadith) and hafiz (pl. huffaz) because of their frequent occurrence in the text. If there is an English spelling for a word, I will not use the strict Arabic transliteration. For instance, I will use the Koran, not the Qur'an.

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Furthermore, among these six books, the compilations of Bukhari and Muslim gained the utmost authority. Yet, the contest between these two still continues and has yet to be over. Scholars still discuss which one is more favorable over the other. Ibn Khaldun reports that in his time the Western (North African) scholars considered Muslim's compilation of hadith (*Sahih al-Muslim*) more authoritative than Bukhari's compilation of hadith (*Sahih al-Bukhari*), whereas the opposite was true for the East (Ibn Khaldun II: 447-463).

What guided this process and bestowed unparalleled authority on a minute group of scholars and their narratives while depriving others of it? This study demonstrates that the huffaz were always the students of huffaz from previous layers. A student could not become a prominent scholar unless he was a student of one. This structure reminds us of the structure of Nobel Prize winners in modern academia. Zuckerman's work documented the crucial role played by the social position of a prominent mentor on the prospective status of a student. Mullins conducted a similar research yet this time about communities of prominent social scientists. Collins conducted the most wide-ranging research on the issue about the networks of philosophers in the major civilizations of the world. These studies show parallelisms, concerning authority formation, in the social structure of intellectual communities regardless of the culture, time frame and geographical location.

The observation about stratification of discourse communities has far reaching ramifications because it is not limited only to intellectuals. Instead, each discourse network is not flat but stratified. In a narrative social structure, eyewitness to narrative and narrators stand at the top of the pyramid, a social power explicitly reflected in the

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courtroom, news media, historiography, ethnography, or dinner table. "Being there," then, and "being here," now, empowers the narrators with various identities: scientist, journalist, reporter, historian, witness, ethnographer, grandfather, and the like (Geertz). For instance, they might appear in history as Apostles of Jesus, Companions of Muhammad, the close circle of Marx, or a research team. Their authority goes almost unchallenged among the adherents of the discourse network.

Eyewitness narrators thus constitute the core of the networks of narrative through which narratives disseminate, originating in the circle of a Prophet, a laboratory, a crime scene, a "field," a street corner, or a dinner table. For the most part, the event and the witness gain this status fortuitously. Usually, little can be done to become an eyewitness or to avoid it; in general, it depends on a lucky or an unfortunate accident. What makes the eyewitness so powerful is that there is no way to replicate the once occurring transient event after it is witnessed. Events happen here and there mostly unplanned and unexpected.

Thus the status of the witnesses cannot be replicated at wish. As it is accidental to witness a once-occurring transient event, it is also accidental for an event among infinite number of events to gain social notability. If and when this happens, the eyewitness narrative becomes most wanted by the public, courts, newspaper readers, faithful followers, historians, or curios students of a scientific field--a process that instigates formation of a narrative social structure spontaneously.

Eyewitnesses enjoy the highest social status because, first, only they can speak independently without reporting from anyone else, and, second, only they can use object language in their talk. Others who re-tell the story have to rely on them in their reported

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speech and thus cannot use object language. Third, a *participative* mode will characterize their speech rather than a mere *reportive* mode.

Another reason why eyewitnesses are so powerful in the discourse network is that the reconstruction of the event at a later time depends on the narratives provided by them. Without eyewitness narratives, stories cannot gain the same authority. Furthermore, even those who are not witnesses, but mere reporters, have different degrees of social authority within the discourse network based on the distance that variably connects them to the eyewitnesses. The number of steps between social actors and the original teller(s) is inversely related to their social authority. Those who re-tell a story through longer chains, which indicates a longer distance, will not be as esteemed as those who report the same story through a shorter chain.

Yet, if the eyewitnesses, who are at the core of the network, become unreachable, discourse mediators emerge, each adding a new level to the reported speech. Each additional level of reported speech means a longer distance from the original teller and thus less social authority to the narrative and to the narrator. The length of the narrative chain has a direct impact on the faith it can deserve in the eyes of the public.

Consequently, in daily life, we all try to eliminate discourse mediators in our talk with the purpose of keeping the levels of reported speech as low as possible. This is because the number of discourse mediators in one's narrative is inversely related to his or her status in the network of narrative or discourse community. For this purpose, we strive to establish connections with some social actors and report their speech while avoiding others. In these processes, our social network gets shaped without us knowing

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how. Briefly put, this study argues that metalanguage configures and re-configures social networks out of sight.

Figure 1.1: Out-layer (diachronic) and In-layer (synchronic) ties

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The above graph illustrates how this phenomenon manifests itself in the hadith transmission network. In the interconnections of 26 layers observed here, only a very limited number of connections are to peers from the same layer. More concretely, only 880 (6.4 %) of the total 13,712 connections are inward (in-layer or synchronic), whereas 12,832 (93.6 %) are outward (out-layer or diachronic) connections. As I mentioned earlier, the ratio of teacher connections within a layer does not exceed 3 % although fluctuations can be observed in the data over time. This shows that promising hadith students had to persistently avoid in-layer connections with their peers by not accepting their narrative because this would have increased the levels of reported speech unnecessarily. The foresighted investment for a student was in teacher connections to non-adjacent layers as much as possible. Similarly, the foresighted investment for a prominent mentor was in students from the farthest, the youngest, possible layers.

The question of authority formation in the scholarly community has far reaching implications on culture and society. The authority of the huffaz, who were part of the leading intellectual community of their time known as the *ulama,* was not limited only to the hadith transmission network. They were also highly influential both on the intellectual community and the Islamic society in general. Since there is no formal central authority in the Islamic community, the role of the *ulama* is crucial for the

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working of society. The authority of the *ulama* is increasingly drawing the attention of students of the Islamic society[4]. Islam lacks an authoritative central figure or an institution like church comparable to some other religious communities that are more familiar to sociologists. This can be seen as a weakness. Yet, Bulliet's recent exploration shows that, in the absence of a single authority, there have been multiple forms and sources of authority in Islamic society and culture: the Companions of the Prophet, the scholars or the *ulama,* in particular the scholars of hadith, and the saintly figures or sufis (Bulliet 1994).

> Islam lacks a single authoritative guide, individual or church. While some have seen this as a weakness, Bulliet's exploration of the multiple sources of religious authority (the early companions of the Prophet, the scholars of Prophetic traditions, *ulama,* and the Sufis or mystics of Islam) enables us to understand the strength of an evolving tradition possessed of multiple centers of authority and power, a tradition which has offered multiple answers to questions of faith and belief (Esposito 1995)[5].

The Research Site

Above I suggested that authority formation in the scholarly community depends on connections to prominent mentors; thus, the foresighted investment for a hadith student is to study under the most prominent and oldest teachers. For nearly all young pupils, however, the choice of teachers is made for the most part by their parents, not by them. This is true even today where individualism is culturally emphasized. If the

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[4] For a rewiew of the studies on the *ulama,* "A Cultural Elite: The Role and Status of the *Ulama* in Islamic Society" pp. 187-208 in Humphreys, Stephen. 1991. *Islamic History: A Framework for Inquiry.* Princeton, NJ: Princeton University Press.

[5] See Esposito, John. 1995. "Power in Ulema, Madrasa and Sharia," in *Boston Book Review,* September 1995. (The article is a review of Bulliet's book, *Islam: A View from the Edge.*)

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parents make a wrong choice for their child, it will have a detrimental impact on their future.

Reports show that in order to promote their hadith education some parents even accompanied their young children in their academic journeys to other cities to have them meet the most prominent authorities. For instance, according to Dhahabi, the mother of Bukhari accompanied him when he was young in his academic journeys (See Chapter 2, translation of Bukhari's record from Dhahabi). However, students took charge of their life after they reached a certain age. Below, I will use the biography of Ibn Hajar (773-852 AH), written by his renowned student and historian Sakhawi in two huge volumes, to explore the culture and network of hadith scholars[6].

Ibn Hajar is one of the most reputable scholars of hadith in the history of Islam. By analyzing his case, it is possible to shed some light on the upbringing and life of hadith scholars and the culture of hadith education. Hadith education in medieval Islam can be conceived of as analogous to humanities education in our time because it offered a rich body of literature in history apart from its religious importance. Furthermore, for some, such as Ibn Hajar, studying hadith meant a calling, a vocation for spiritual and intellectual fulfillment. Especially in the early period, those who studied hadith for mundane rewards were severely criticized by their colleagues. Yet, later, the reward system changed by the institutionalization of education where teachers were paid regular salaries by the school they worked for. The remarkable sincerity and sacrifice of great

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hadith masters led them to travel all over the Muslim world to improve their knowledge. Travelling abroad for the sake of knowledge, after one graduated from studying with the local authorities, was an important part of hadith education.

Ibn Hajar first studied in his hometown, Cairo, under the most prominent scholars. As any serious student of hadith did in that time, Ibn Hajar also knew that he had to make an academic journey abroad, *rihla*, to collect hadith with the shortest chains, and to study under the oldest and the most prominent masters of hadith. He was reported to be an excellent horse rider[7]. This, he considered, was part of being a good student. His student al-Sakhawi (831-902 AH) reported from him as saying: "A good student must be speedy in reading, writing, eating and walking" (Sakhawi 18).

As a young student, the first trip Ibn Hajar made was to Aleppo, a Syrian city on the trade routes famous as an intellectual and commercial center. There he expected to meet some of the oldest masters of hadith, narratives about Prophet Muhammad. The patriarchal hadith teachers of Aleppo, Ibn Hajar hoped, could teach him narratives with fewer nodes in the chains of authority and more parallel chains for the narratives he had already learned from his mentors back in Cairo.

His was a competition with fellow students for shorter chains as well as more parallel chains of authority. The shortest chains of narrative—which meant the least levels of reported speech, could only be collected by traveling abroad to study with the oldest authorities. Ibn Hajar's future prestige as a scholar depended on his opportunity to

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[6] See, *al-Jawahir wa al-Durar*. Vol. I-II. The work is an extended and extremely detailed biography of Ibn Hajar by his close student al-Sakhawi. It is also full of colorful stories, which we cannot judge about their reliability. However, they serve an important purpose by shedding light on the culture of hadith scholars, which would otherwise have remained in the darkness of history. For instance, the legendary story below about him sacrificing his love for the sake of knowledge, regardless to its historicity shows the

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study under the most renowned authorities in his time, which made him travel abroad. Academic journey, or *rihla,* helped him collect narratives with shorter chains of

great emphasis in the culture of hadith students on the pursuit of knowledge.

[7] For the medieval technology of transportation, see Bulliet 1990.

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authorities. His friends back home had exactly the same narratives yet from younger teachers, thus, with longer chain of authorities and increased levels of reported speech.

When he first arrived in Aleppo he did not know that not only knowledge, but love as well, was awaiting him there. He met Layla, a young girl who stole the heart of this bright young student of hadith. She was going to put his scholarly aspiration on trial and could jeopardize all the plans Ibn Hajar made before leaving home. His unexpected love for the Syrian Layla might have preoccupied Ibn Hajar and distracted him from his studies. Fortunately, he, as a student of religion, did not have to suppress and hide his love as his contemporary young scholar had to do in *The Name of the Rose,* a historical novel by Eco. In Islam, unlike some other religions, asceticism is forbidden and a religious scholar is no different than a layman with respect to love and marriage. Moreover, love and marriage are even praised as a custom of Prophets. Therefore, Ibn Hajar and Layla decided to get married while he continued his studies and quested for more valuable narratives from respected authorities.

Ibn Hajar, following the custom of the time, either copied the books of the reputable scholars of Aleppo or had a scribe copy them for him. Yet, owning a copy of a hadith book did not mean much other than personal usage. In order to get the copy sanctioned for prospective use in instruction and citation, one had to study the book either under the authority who wrote it or one of his licensed students if the author was not alive. Studying a book entailed reading and discussing the book together thoroughly from cover to cover. Depending on the circumstances, either the teacher or the student performed the reading. In the terminology of hadith instruction, the former is called

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"reading" (al-qira'ah) while the latter is termed "auditing" (al-sima')[8]. This exercise was also an excellent way of proofreading the manuscript. The permission for using a book, or a segment of it, or a hadith alone, is called *al-ijazah.* Without *ijazah,* which simply means permission, a scholar could not legitimately use another scholar's work (Makdisi 1981, 1991).

Upon reading a book, either by Ibn Hajar to his masters or by his masters to Ibn Hajar, these masters signed in the back of Ibn Hajar's copy thereby authorizing him to relay these narratives to his students perhaps as late as forty or fifty years, of course if he was lucky enough to live that long. This is because students would be interested in teachers only when they outlived the oldest among their colleagues since only by then did their chains became the shortest. While writing and memorizing narratives, Ibn Hajar was also hoping to relay them one day to young generations, a prospectus that depended on his outliving his fellow students, over which he had no control.

At that point, Ibn Hajar had to make a choice between staying with Layla or following the prerequisites of a successful career. Since Ibn Hajar strictly adhered to the aforementioned principles of success which became crystallized over centuries in the community of hadith scholars, it did not take long for him to finish collecting the hadith of Aleppo from the oldest masters of the city. Layla was also under pressure because she also faced a dilemma between following Ibn Hajar to an unknown future in the remote lands her beloved would travel to or staying with her family in Aleppo. One of these

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[8] See Chapter 3 for a more detailed discussion of various methods of narration and the way they are codified.

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requirements was extensive travel back and forth to the centers of hadith education such as Arabia, Yemen, Central Asia, Iran, India and Spain[9].

Layla and Ibn Hajar jointly decided to sacrifice their love. He made a difficult decision by leaving the beloved *Rose* behind just like his contemporary young Christian scholar did in Eco's novel. But in the case of Ibn Hajar, it was a voluntary sacrifice of love for the sake of knowledge. This was an extremely painful decision for both of them. Ibn Hajar, who later became the most respected scholar of Islam, particularly in the Sciences of Hadith, in his time all over the world, always remembered her and voiced his mourning for their love in his poems.

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[9] Ibn Hajar traveled all his life between centers of hadith. He went to Yemen a few times where he met one of the greatest linguists of Arabic, Fayruzabadi. He traveled to Damascus, Jerusalem, Mecca and Medina. In Mecca, his wish when he drank from the holy well of Zamzam near to the Qa'ba, the symbolic House of God, was to reach to the level of al-Dhahabi, the highest authority in that time. It is believed that these wishes are accepted by God. Sakhawi, a close student of his, wrote:

> Some of his students asked him: "Who has more knowledge in memory, you or al-Dhahabi?" He kept silent. This was an expression of humility from him, may God be pleased with him. He told us that he drank the water of Zamzam when he made a pilgrimage to Mecca in the year 800 or 805—the doubt is from me, to reach to the level of the Hafiz al-Dhahabi. He also said: "When I made another pilgrimage around 20 years later, I found myself desiring more than this level and I wished for a level that is higher than that. I hope that God will help me to reach that level." I say that God granted him this wish and every one without exception bore witness to that (Sakhawi 106).

One of Ibn Hajar's youngest students was al-Suyuti. He was even more rigorous than his teacher. He took pains to travel to India and Morocco besides the places his teacher had traveled. Since childhood, his purpose was to reach and pass the level of his teacher, Ibn Hajar, who was the highest authority in the world. In his autobiography, Suyuti writes:

> Thanks to God, I traveled to the cities of Syria, Central Arabia (Mecca and Medina), Yemen, India, and the West (what is known today as Morocco). When I made my pilgrimage, I drank the water of Zamzam for several wishes. Among them were that I reach to the level of al-Bulqini in Fiqh[jurisprudence], to the level of Ibn Hajar in Hadith. I was given the authority to issue legal rulings (fatwa) in the beginning of 71 [i.e. 871 AH which means at the age of 22 given that he was born in 849 AH.] and in the beginning of 72 [i.e. 872 AH] I conducted my first dictation of hadith (imla al-hadith) (*Tabaqat al-Huffaz* 8).

It is evident from his account that al-Suyuti was in competition with his great master and proud of reaching such a high level at an age earlier than his famous teacher did. These accounts illustrate the competition even between teachers and students as well as the role of traveling.

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I departed, and left my beloved in her house,
Against my will. I never inclined to any other,
But only to engage in the study of hadith,
All my days, and at night, to long for Layla.
.....
Rise, and listen to some tavern-song! For Layla is in the dead of night,
Sleeping in my embrace, but only in my dream,
And my streaming tears lead a dance with her shadow.
Do you suppose those who see me know this and what befell me?

Ibn Hajar did the right thing, some might think in retrospect, by giving supremacy to his inner drive for more knowledge over his passion, because he later became one of the greatest scholars of all times in Islamic culture. His authority still goes unchallenged in the field of hadith. His colleagues, students, and future generations came to address him with the title *shaykh al-islam*. This title means, in the culture of hadith scholars, the highest authority in Islamic knowledge and it is bestowed upon exceptionally outstanding scholars whose number does not exceed two scores in the entire Islamic history (Sakhawi 14-17)[10]. There was a traditionally accepted stratification among scholars of hadith: *shaykh al-Islam*, the highest position, was followed by *hafiz* (guardian or the one who keeps in memory)--whose stratum I will analyze in this study, *hujjah* (authority), *muhaddith* (narrator), *musnid* (reporter of chains), and *talib* (student). These titles were not issued by a formal institutional body but by consensus of the majority among colleagues and future generations as the work and legacy of a master became collectively recognized as outstanding. The consensus about the authority of a scholar could never be complete; even the authority of the most respected scholars has been challenged. Ibn

[10] The title *shaykh al-Islam* is used for different purposes in different contexts. For instance in the Ottoman government, it meant an official position within the government. The above meaning reflects the way hadith scholars used the term, which might not be the same with its usage in other contexts.

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Hajar successfully gained recognition in the community and quickly climbed the ladder of scholarly hierarchy until he reached the highest level.

Alas, he was the last of his kind in the history of hadith. In the generations that followed, no one could reach his level. Not only the stratum of the *shaykh al-Islam*, with the death of his student al-Suyuti (1505 CE), even the stratum of hafiz was beyond reach for the following generations. His death marked the end of the tradition of huffaz, the eminent hadith narrators who committed hundred thousands of hadith to their memories and embodied them in their lives (Fadel 1995).

After the death of great hadith scholars such as Ibn Hajar and Suyuti, the academic scene was left to relatively minor figures from the stratum of *muhaddith*. The nine-century-long network of huffaz from the time of Prophet Muhammad to the sixteenth century, expanding all over the Islamic world from the gardens of Spain to the steps of Central Asia, came to an end. Suyuti, a well-known polymath, wrote in his biographical dictionary about the death of Ibn Hajar whom he met at a very young age: "the gate was closed after him, and this vocation ended with him" (Suyuti 1983: 553). Later generations fatalistically accepted this as an irreversible process, and scholasticism was bound to prevail.

Paradox

The network of prominent hadith scholars, from the stratum known as huffaz (plural of hafiz), which I analyze here, emerged with the rise of Islam in the seventh century. The network expanded with the spread of Islam until the 11th century, which corresponds to layer 11 who lived around the 4th century after Hijrah, exactly from 218 AH to 348 AH. The number of huffaz reached its highest in layer 11 with 117 scholars.

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This number suddenly dropped to 77 scholars in layer 12, to 79 scholars in layer 13, and to 74 scholars in layer 14. From layer 15 on, the decrease in the number of huffaz became even more drastic; 31 scholars in layer 15, 10 scholars in layer 21, and only 1 scholar in layer 26 (See below Figure 3.1).

After the 11th century, although Islam continued to spread to the Balkans, Africa, India and the Far East, the hadith transmission network began to shrink in size and the bell curve tapered off until it completely diminished. One should not expect an endless exponential growth in the size of the network because of the quantitative constraints. Yet the decrease is an unexpected historical development. Something happened at that point in time that made the network shrink despite the spread of Islam and increase in the Islamic population. This paradox still begs for an explanation. It is easy to explain the formation and expansion of the network because it historically corresponds to the rise and spread of Islam. In contrast, the way the size of the network tapered off from the11th to the 16th century is a challenging puzzle.

The answer to this paradoxical question, I suggest, lies in the changing modes of narration, from predominantly oral/vocal (during the time of expansion from the first to the eleventh layer), to predominantly visual/written (from layer 21 to layer 26). This stage is known among the historians of hadith as the period of 'compilation', *tadwin.* With the spread and institutionalization of education, the tension between memory and manuscript was resolved in favor of the latter. The writing was in use since the advent of Islam but only as an aid to the memory. Later, however, memory became an aid to writing and scholarly communities willingly accepted to become writing-depended. The

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change in the mode of discourse had a clear impact on the social organization of scholars, which is best illustrated in the example of the huffaz.

Besides, the beginning of decrease in the number of huffaz corresponds to the rise of the Six Canonical Hadith Books. These books made the reliable hadith so handy for students that they did not feel the need to re-do the research all over. Manuscripts gained so much trust and commanded so much authority that they conquered the domain which was traditionally dominated by the memory. The public gained easy access to 'solid,' *sahih,* hadith. Weak hadith, as a result, was contained to a great extent—another reason why interest in the study of hadith decreased.

Historians of hadith call this phenomenon as *tadwin al-hadith* (compilation of hadith) or *tasnif al-hadith* (classification of hadith), which is different from *kitabah al-hadith* (committing hadith to writing). The latter phase (writing down hadith) had long preceded the former (compilation of hadith) (Sezgin 1956: 11-16). Written records of hadith date back to the time of the Prophet which shows that writing was employed since the beginning in the history of hadith with an increasing usage (Hamidullah, Azami, Abbott, Sezgin). Yet, systematic presentation of the material in books continuously evolved, thereby giving rise to new genres. The great scholar of hadith Ibn Salah writes in his *Muqaddimah,*

> The first who compiled/classified [only] the reliable hadith (*al-sahih)* is al-Bukhari Abu Abdillah Muhammad ibn Isma'il ... He was followed by Abu al-Husayn Muslim ibn al-Hajjaj al-Nisaburi... Although Muslim studied under Bukhari and benefited from him, most of their teachers are the same.... They did not exhaust all the reliable hadith in their compilations..... (Ibn Salah 89-91).

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The *sahih* genre (books containing only the reliable hadith) was preceded by other genres[11]. The rise of new genres that systemized and classified hadith material and made it easily accessible to the public was also paralleled by the rise of formal institutions of hadith education (*dar al-hadith*), which was very consequential on the future of the discipline. In 1173 CE/ 569 AH, Sultan Nuruddin Mahmud opened in Damascus the first Hadith College known to us, Dar al-Hadith al-Nuriyya. He was followed by Sultan al-Malik al-Kamil Nasiruddin Muhammad in 1225 CE/622 AH who opened another Hadith College in Cairo, Dar al-Hadith al-Kamiliyya. Later, al-Malik al-Ashraf opened Dar al-Hadith al-Ashrafiyya in Damascus. Thereafter, Hadith Colleges spread all over the Muslim world from Bosnia to India and to North Africa (Okic 105-114).

As a result, hadith education was routinized, its reward system changed, and the major educational institutions began inserting control over the narrative (Makdisi). One striking change in the reward system was the increasing role of monetary compensation in the form of regular salaries to teachers in contrast to the earlier generations of great masters who stressed studying hadith only out of love for the Prophet and refused governmental posts (al-Khatib al-Baghdadi 1990). For instance, the great Bukhari

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[11] Among the earlier genres are the *sahifa* genre (personal notebooks of hadith by the Companions; e.g. the *sahifa* of the Companion Hammam ibn Munabbih), the *musnad* genre (collections of hadith organized according to the name of the Companion who reported them; e.g. *Musnad* of al-Tayalisi and Ahmad ibn Hanbal), the *musannaf* genre (collections of hadith organized according to the subject matter; e.g. *Musannaf* of Abdurrazzaq and Ibn Abi Shayba). Later, new genres emerged within the *musannaf* genre such as the *sahih* genre, the *sunan* genre (e.g. the *Sunan* of Abu Dawud, al-Nasa'i, al-Darimi, and Ibn Maja), the *jami'* genre (e.g. the *Jami'* of al-Tirmidhi) (Cakan 1989, Siddiki 1993, Ozbek 1994, Okic 1959, es-Salih 1988). Some of these works gained almost canonical authority among Muslims since their first emergence and gave them additional assurance that the hadith they contained is reliable.

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preferred to leave Nishapur in an old age than to teach hadith in the palace of the ruler (Siddiqi 54)[12].

Huffaz, who maintained the tradition of sincerity they inherited, reacted against this change in the reward system. They criticized new generations of students who studied hadith for worldly benefits, including social recognition and monetary compensation. Sufyan al-Thawri was one of them. Sakhawi reports that Dhahabi said:

> He [Dhahabi] also said in another place: "It is reported from Sufyan al-Thawri that he said: "Pursuing the study of hadith is not part of the preparation for death, but a disease that preoccupies people." He said this verbatim. He is right in what he said because pursuing the study of hadith is other than the hadith itself. Pursuing hadith is a conventional name comprising matters that are additional to learning the meaning of hadith. Many of these matters lead to knowledge, but most are a source of pride for the narrators, such as obtaining ornamented copies of a book, or trying to find the shortest chain for a hadith, or increasing the number of one's teachers, or pleasure with titles, or hope for a long life so that he can narrate hadith (to subsequent students), or desire to become Unique (infirad, i.e. by outliving his fellow-narrators), and many other similar matters required for egoistic purposes but not for deeds aimed at gaining the blessing of God.
>
> If your quest for hadith is surrounded with these disasters, when will you be freed from them to gain sincerity? If the traditional sciences (`ulum al-athar) have become diseased, what do you think about the rational sciences which divert from faith and instill doubts that did not exist in the age of the Companions and the Successors? Their Sciences were the Quran, the hadith, and jurisprudence." (Sakhawi 22).

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[12] "Imam Bukhari's *Wanderjahre* continued for some four decades. In the year 250/864, he came to the great Central Asian city of Nishabur, where he had a grand reception suitable to a traditionist of his rank. Here he devoted himself to the teaching of tradition, and wished to settle down. But he was obliged to leave the town when he declined to accept a request to deliver lectures on *hadith* at the palace of Khalid ibn Ahmad al-Dhuhali. From Nishabur he traveled on to Khartank, a village near Bukhara, at the request of its inhabitants. Here he settled down, and died in the year 256/870" (Siddiqi 54). The ambiguity in the relations with the rulers characterizes the life of such great earlier hadith scholars as Abu Hanifa, Malik, and Ibn Hanbal, who had to resist pressures from the rulers with the purpose of keeping scholarship free from their influence. Yet, later generations were not so reluctant in accepting offers by the rulers after the institutionalization of education.

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Studying hadith for mundane reasons such as for gaining social prominence, as the above account shows, was heavily criticized and considered as a grave sin among the pious huffaz. They insisted on selfless quest for knowledge and great respect towards the sayings of the Prophet. The extent of this respect might be understood from the way they greeted the Prophet after each time his name was mentioned by saying, "May peace and blessing of God be on him and on his family." (The tradition of greeting the Prophet whenever his name is mentioned is still maintained among the majority of Muslims.) This greeting is repeated countless times in the books of hadith, even without abbreviation, with the purpose of showing respect and love to the Prophet. The huffaz also criticized the careless attitude by some of the teachers and students towards hadith. Sakhawi continues to report from Dhahabi,

> What good is there in hadith-audition (sama`) under ignorant teachers who sleep while children play and young men prattle, making jokes while reporting hadith, soon feeling sleepy, debating haughtily while their readers make spelling mistakes? They repeat meaningless words such as "aw kama qaal" ("or the way the Prophet said it") and yawn. For God's sake, leave us alone, for we have become the laughingstock of sensible people. They look at us and say: are these the People of Hadith? ! (Sakhawi 21).

Ironically, these developments in the technology of discourse (Ong) and standardization of the protocols of transmission or the 'interaction rituals' (Collins) was terminal for the network of the scholars who successfully brought them about by using their legendary retentive memories. They were so successful in decreasing the need for memory that their very success undermined them as a group, as a social type, and made them people from a bygone era in a literate or writing-dependent society. From then on, ahadith (pl. of hadith) were to survive for the most part through manuscripts but not

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memories. Scholars passed down bulky manuscripts such as the Six Canonical Books but not individual ahadith (Sezgin 1956).

> But rare hadith and high isnads gradually became less important as, over a three-hundred-year period, the canonical collections of sound hadith became increasingly authoritative, and hadith classes came to be devoted primarily to teaching them and a few other written texts. Orality in hadith teaching persisted, but by the sixteenth century, the best isnads were considered those that stretched back to the author of a book or to a particularly famous teacher, rather than to an individual reciter of unanthologized hadith... Most hadith deemed by the muhaddithun to be weak died away, and with them dwindled the prominence as teachers of individual reciters with personal isnads going back to the Prophet. After all, if the only worthwhile hadith were those in the books, even including those hadith collections that continued to be consulted occasionally in addition to the six canonical works what place remained for the scholar who had collected hadith a few at a time on his own? (Bulliet 1994: 20).

Authority Formation from the Levels of Reported Speech

What made Ibn Hajar and many others like him, who were awarded by the general consensus of their colleagues the title hafiz, so great an authority in the scholarly community? The conventional view might suppose at first sight that the students were attracted to particular teachers because they were more knowledgeable. This study argues otherwise by showing how the network position of scholars determined their students, and thus the level of their social prominence.

This study aims to reveal the structure of authority formation in a discourse community in which social actors are embedded both as tellers and listeners. The scholarly community, like other discourse communities, deals with symbolic structures. They produce, exchange, and transmit symbols. Just like other social actors, narrative is the main, if not the only, way scholars think, organize and market their ideas (Danto 1985). Not only the human and social sciences, but also the hard sciences still depend on

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narrative (Nash 1990). Furthermore, not only the oral cultures (Ong), but also the literate and even the computerized cultures depend on narrative (Schank). New technology hardly replaces the old one completely, rather they open up new possibilities and coexist with the older ones.

Thus, most of the symbolic structures circulating in the scholarly community are organized, stored, and marketed through narration. In the scholarly community, doing is saying. Furthermore, talk, and in particular reflexive speech, talk about talk, connects scholars to each other and to previous and future generations. Scholars maintain the life of narratives, by re-talking about them; and narratives, in turn, maintain the network of the scholarly community. Unlike what most social theory would take, their words are their deeds. Consequently, social authority formation in the scholarly community cannot be treated separately from the narrative they are dealing with.

Discourse networks develop around narratives, be it called science, history, religion, literature, or less formally organized sets of everyday stories. Generally speaking, a discourse network is a social organization, or a social organization is a discourse network. Without speech and narrative, it is impossible to imagine construction and operation of a social system, a firm, a university, a gang, a family, a state, a market, and the like. A narrative and a network rise simultaneously. Soon, thereafter, a metanarrative develops from their interaction. These three structures, giving life to one another, influence each other; thus, a change in one brings about changes in the others. The three, narrative, social network, and metanarrative, intertwine to constitute a metastructure, a social organization.

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One such metastructure is the subject matter of this study, namely hadith transmission network of Prophet Muhammad. Narratives of and about Prophet Muhammad and a social network of his Companions and Successors developed gradually alongside an evolving metanarrative, called Science of Hadith. Departing from the conventional approach that focuses on one of these elements, the focus here is on the metastructure, the hadith narrative, the hadith transmission network, and the Science of Hadith as jointly produced and reproduced over time.

In the process of narration, not only the metastructure, but also its building blocks, narrative, social network, and metanarrative, are also reproduced in interaction with each other. A hafiz is always a student of another hafiz from a previous generation. No one without a hafiz as a teacher in his network reached that level, a structure that reminds us of the similar structures in the academy today (Zuckerman). Rising was possible only on the shoulders of giants (Merton). Authority of narrators and their narratives derived directly from the authority of their mentors, and the mentors of their mentors and so on.

Likewise, scholars, just like other social actors, derive their identities from the *type* of narrative they deal with. Those who deal with the empirical narrative are called scientists. Humanists are those who deal primarily with the fictive narrative. Critics and theorists deal with metanarrative. Far from being stable, the borders are redrawn continuously by each generation (Geertz). Historians, sociologists, theologians, and novelists keep vigil to protect borders of their disciplines, that is the borders of their discourse network, by reproducing not only the narrative but the specific style of

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narration they are distinguished with *vis a vis* others who deal with the same narrative as well.

Weak Ties and Social and Narrative/Discursive Capital in a Discourse Network

I stated earlier that authority formation in a discourse network is not based only on the accuracy of the reported speech but more importantly on the network proximity to the source which is reflected in the geodesic distance between the source and the speaker. Paradoxically, a greater network proximity (a smaller geodesic distance) between a speaker and the original source is produced by a greater temporal distance between him and his contacts and the contacts of his contacts.

Proximity to the original teller is a feature of a narrator's social network and can be measured by analyzing the network path connecting social actors to each other in the network. In the hadith transmission network, the path distance between a scholar and the Prophet is closely related to the longevity, which might mislead us to think that age is what attracted the students to particular mentors. Age was important only when it brought about shorter chains, which I measure below using the geodesic distance, between the Prophet and the scholar with the highest longevity. The long age serves as an indication of possible shorter chain only if the aged mentor commenced his studies in early youth and also under old masters with shorter chains (Bulliet 1983).

In the hadith transmission network, therefore, social capital played the most crucial role in attracting students, not age nor knowledge. Scholars with desirable network connections characterized by the shortest narrative chains as well as an extended number of parallel chains attracted students from remote parts of the Islamic world. The

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discursive/narrative capital of prominent scholars derived directly from their social network.

Accumulation of valuable narrative chains began in an early age mostly under the supervision of old patrons and masters who wanted to survive through their students. Families also played a very crucial role in supporting young pupils morally and financially in their hadith education and especially in their travels abroad. Furthermore, some renowned scholarly families produced scholars over centuries (Bulliet 1972, Shakir 1982).

Yet, this investment in knowledge becomes a social currency only after an age threshold is reached which is marked by the time when a scholar's layer begins its demise. Longevity, contingent upon the conditions I mentioned above, make scholars with the shortest chains of narrative stand out. Only by then can the social capital be put in use. Otherwise, if there were many scholars with the same length of chains, regardless of their age and knowledge, they would not be so appealing to the students. Unlike what is traditionally assumed, it is neither age nor knowledge that counts but a particular configuration of social network that would permit seekers of knowledge to reach the original source with a minimum number of discourse mediators.

The density of connections to the outside, in particular to the non-adjacent social actors, is a striking network configuration, which results from attempts to reduce the levels of reported speech. One would expect a prominent group, as I did at the outset of this study, to be closely linked to each other. On the contrary, the analysis below shows that the prominent scholars, as individuals and as a group, were closely linked to those who were distanced from them. In contrast to my initial expectation, they were distant

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from their own cohort. The network of the prominent, aggregate or individual, is therefore characterized by an extremely high ratio of weak ties to those outside of their own group.

Prominent scholars who act as inter-layer discourse brokers bridge the holes between layers (Burt). In this connection, weak ties, social capital and structural holes play an important role on the process of authority formation (Coleman, Granevetter, Burt). Likewise, same scholars play the role of an inter-disciplinary discourse broker as well by bridging the holes between various disciplines. This study opens up a new area of application for these perspectives that emphasize the role of social network configuration in the process of competition. I demonstrate in this study that discourse networks are no different from other social networks with respect to competition and authority formation on both individual and aggregate or corporate levels.

Social Narratives and Networks

Knowledge is argued to be narrative not only in pre-literal societies (Ong), but also in highly literate, and even computerized, modern and postmodern societies (Danto 1985; Schank 1990; Bruner 1996: 100-118). For instance, modern science, philosophy, and education, and the communities that are increasingly filling up the endless cyberspace depend on narrative. Evolving technology of discourse does not affect the place of narrative as the foundation of social actions, ties, and organizations, but it changes the mode of narrative production and dissemination/marketing with a clear impact on the social network configuration. Likewise, despite the evolving technology used in recording and reporting, narrative construction of social networks still relies on reported speech.

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Narrative becomes possible through reported speech in two ways: (1) narrative disseminates through reported speech; and more importantly, (2) the internal structure of narrative heavily relies on reported speech because narrative is a report of what happened. Narrative is transmitted to succeeding generations through reported speech. Furthermore, what is transmitted is an unstable heritage which had also been received from foregoing generations through reported speech (Agnon and Scholem 1961: 349-350).

After mentioning the link between narrative and metalanguage, we need to point out another link, which is between narrative and social networks. The possibility of social narrative and social networks mutually depend on each other. One is impossible without the other; they are jointly constructed and reconstructed by each other. No social network without a social narrative and no social narrative without a social network. Furthermore, without reported speech indirect connections in social networks would be difficult to imagine. In this connection, the power of reported speech manifests itself clearly. Reported speech incorporates non-present social actors into the network among the present social actors, thereby extending it endlessly in timespace. All these illustrate the persistent mutual interdependence between discursive and social structures, even after the advent of cyberspace societies.

If this is so, why is there a gap between literary and social structuralism? This institutionally and conceptually deep-rooted gap blinds researchers from seeing the every day joint processes created by discursive and social dynamics. Because of this gap, we ignore how everyday life employs both discursive and social structures simultaneously. In fact, our daily life is impossible without a strong link between them, and also a

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perfectly synchronic operation of them. This is true not only for individual social actors on the micro level but also for corporate/aggregate social actors on the macro level.

In reaction to this common view, speech act theory aims to elevate speech to the level of act but only by implicitly annihilating what constitutes a speech. A speech is an act (Austin), but also, according to semiotics, an act is a speech (Saussure, Barthes), intertwined and inseparable. Together, they make our daily life possible. Consequently, one cannot be ignored in favor of the other; or worse, one cannot be treated in terms of the other just because we think the other is more privileged. Instead of treating speech as an act, or vice versa, we should explore how they are connected to each other, working together to construct the structures we are embedded in.

Hadith Studies

The present approach to narrative is characterized by externality; that is to say it looks at narrative and its social role from outside. More concretely, the main research problem of the present work is the interplay between social narratives and networks. The content of narrative, knowledge or meaning, is beyond the scope of the present study. In other words, this is not a study about hadith as such; it is a study about how the discursive structure of hadith as a grand social narrative is related to the monumental social network through which it came to disseminate across time and space.

> The type of literary study which structuralism helps one to envisage would not be primarily interpretive; it would not offer a method which, when applied to literary works, produced new and hitherto unexpected meanings. Rather than a criticism which discovers or assigns meanings, it would be a poetics which strives to define the conditions of meaning. Granting new attention to the activity of reading, it would attempt to specify how we go about making sense of texts, what are the interpretive

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> operations on which literature itself, as an institution, is based (Culler 1975: vii).

The present scholarship on hadith in the East and the West is still caught up within the confinements of a paradigm that dates back to the time of the emergence of Islam (Coulson 1983). Hadith criticism (*Usul al-Hadith*) as we will discuss below can be traced back to the time of the Prophet himself although it took more than a century for its rules to be crystallized and gain a common acceptance. The sole concern in this paradigm is to determine whether hadith and its network of transmission are reliable enough for us to place our faith on it. The debate over the reliability of hadith literature and the criteria used to determine it continued over centuries among Muslim scholars, giving rise to different schools.

Later, when the European scholars came in contact with Muslims, especially during the colonization, they also almost completely adopted the same paradigm without developing a new perspective on hadith. One might expect, to his dismay, non-Muslim scholars to ask a new set of questions and develop a new research agenda as outsiders. Yet, their contribution has been limited to attempts to offer new answers to old questions. Non-Muslim scholars on hadith also busied themselves until today with the same question Muslims debated for centuries which is to determine how reliable hadith was[13].

No scholar, Muslim or non-Muslim, claims that the body of hadith literature is completely reliable and beyond criticism. Scholars of hadith developed a range of

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probabilistic measures to determine the place of each narrative on the spectrum of reliability. This spectrum ranges from completely reliable to completely unreliable with numerous grades in between. Scholars variably place each hadith on this spectrum and defend their position against alternative claims. In the absence of a formal authority to finalize the debate on the reliability of a hadith, the public, members of both the intellectual and the lay community must take a stand.

Important as it may be for the students of Islam as a world religion in the East and the West[14], this paradigm, however, hinders emergence of new perspectives on the study of the text and the network of hadith. The literary and linguistic structure of hadith has yet to be explored although literary studies made considerable advances in developing new concepts and methods. Likewise, the social structure of the monumental hadith transmission network is also underdeveloped and still remains foreign to the concepts of the modern social network analysis.

Modern perspectives from social and human sciences can help shift or at least broaden the classical paradigm of hadith studies, which is still completely preoccupied with the age-old question of whether or not hadith deserves our faith, by no means denying the importance of this question. By replacing the classical referential perspective to discourse that characterizes the traditional paradigm with a new constitutive perspective on speech, new questions become possible. Likewise, the

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[13] For an earlier example, see Higgins, Godfrey. 1829. *An Apology for the Life and Character of the Celebrated Prophet of Arabia, Called Mohamed or the Illustrious.* London: G. Smallfield Printer. (The work is edited and reprinted by Mirza Abu'l-Fazl in 1929, and published in Lahore by Premier Book House.) The book begins with summary of the views of European scholars about Prophet Muhammad in the early 19th century. About this age-old discussion among Muslim and non-Muslim scholars, see the works of Junyboll, Siddiqi, Azami, Nabia Abbott, Schacht, Goldziher, Wansbrough, Bulliet and others whose works are to be cited here.

[14] This distinction is fast eroding with the recent growth of Islamic population and literature in the West.

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classical impressionistic and individualistic approach of historians to the hadith transmission needs to be improved, if not completely replaced, with a structural perspective.

Only by going beyond the traditional paradigm, does it become possible for us to discover persisting patterns and structures in the text and transmission network of hadith as well as the interplay between the two. The present study aims to be a step towards this new direction. It jointly uses modern concepts and methods from human and social sciences not only to unearth the persisting patterns in the literary and social structure of narrative but to identify the patterns in their interaction as they jointly evolve into a metastructure as well.

Unlike the existing studies on hadith confined by the traditional paradigm, my approach to hadith is explanatory. We have to remember that even if the age-old debate about reliability of hadith is concluded, we will still need an explanation regardless of the result. Suppose that we concluded that the monumental body of literature is completely reliable or unreliable or somewhere in between, this judgment would not be able to offer an explanation for the social and literary phenomenon called hadith. We would still need to know how and why the system worked the way it did by analyzing the lives and networks of scholars.

Bulliet explores, in a recent work, the broader implications of such an approach to Islamic history. The history of Islam deriving from the data in the biographical dictionaries of Muslim intellectuals can be used as a complementary, if not an alternative, source to the prevailing perspectives in reconstructing the history of Islam by including the lives of ordinary people as well in the picture. In the prevalent Islamic historiography

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today, the focus is on the state, which is perceived as 'the center', power relations and political conflicts. The work and struggle of Muslim intellectuals hardly find a place in this type of historiography. Biographical dictionaries, like all other historical works, retrospectively construct the networks of intellectuals. Meanwhile, however, they provide, though unintentionally, valuable information about countless important aspects of social life that can be interpreted from the perspective of recent approaches presently available to us. Bulliet writes,

> Where the view from the center starts with a political institution, watches it expand mightily, and then observes its dissolution, the view from the edge does the opposite. It starts with individuals and small communities scattered over a vast and poorly integrated realm, speaking over a dozen different languages, and steeped in religious and cultural traditions of great diversity. From this upcoming start, an impressive measure of social, institutional, and doctrinal cohesion slowly emerges, the product of immense human effort, but even more of historical currents beyond contemporary perception or control (Bulliet 1994: 8-9).

Issues Explored

The present study builds upon this recent orientation I have briefly outlined (For a more detailed discussion, see Chapter 3). Here, I will show the advantages afforded by such an approach depicting examples from my research. Without grounding my work in such an approach, I could not have suggested any explanation of the paradoxes I faced while exploring the research questions that the present study posed. I dealt in this work with the following nine issues about theoretical framework, methods, data collection and analysis. Below, I briefly outlined the problems and the hypotheses I suggested for each question in the relevant sections later.

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Issue 1: Why did the size of the network of prominent hadith transmitters shrink and completely diminish despite the continuous expansion of Muslim population and lands?

In response to this question, I hypothesized that the change in the mode of narrative from predominantly oral to predominantly written, with the prevalence of writing-dependent, or literate culture, was responsible for the waning size of the network of huffaz despite the enlarging Islamic population and geography (See Chapter 2). I used the writings of historians as evidence. This argument is based on a recent rapprochement in sociology about the relationship between social and discursive patterns, which gave rise to the following question.

Issue 2: How could the first generation of sociologists ignore the discursive aspects of social action although today it seems unimaginable to think of social actions, actors, and organizations without speech as a constitutive element?

As an explanation to this question, I illustrated that successive generations of social and human scientists gradually come closer to a more accurate solution about the inseparability of discursive and social structures (See Chapter 3). The way to demonstrate this ineluctable yet long ignored connection between these two structures is to analyze the behavior of social networks through time, which requires collecting data on both discursive and social aspects of an organization for an extended period of time. Yet, it was a daunting challenge to collect such data.

Issue 3: How can data be collected about a 26 generation long network that lasts for almost a millenium although neither life of a scholar nor a research team is enough for that task? How can the reliability of such data be tested?

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I delineated how such a quest became possible by the unintended efforts of successive generations of hadith scholars who appended and extended in time the work of former generations in recording network connections, ranging from a small city to a global scale. As for the second part of the question, I claimed that the repeated tests over 26 generations greatly insure reliability of the data (See Chapter 4). The data about the network of 26 generations of scholars lay bare the temporal constraints in social network, which are almost completely ignored by the current synchronic methods. This led to the following question.

> *Issue 4: Is the idea of synchronic structure an illusion although it is so commonly used by the current social and human sciences and thus needs to be replaced by a diachronic approach?*

In answering this question, I displayed the temporal constraints on discursive and social action and claimed that social network and speech--especially reported speech--is produced through diachronic connections and must be treated as diachronic structures (See Chapter 5). However, current synchronic methods in sociology cannot be used to demonstrate and analyze diachronic or temporal structures. They need to be modified or supported by the methods from other pertinent fields, e.g. time series analysis from econometrics. I also argued that these connections could be better captured on the level of metalanguage.

> *Issue 5: Why is a cohort/layer in a prominent social group thinly connected among itself while, it is thickly connected to other cohorts/layers? In other words, why are prominent social actors closer in the network to those who are far from them?*

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I found that vertical ties are the dominant feature of a time-stratified network. As an explanation, I claimed that the effect of the levels of reported speech (LRS) is responsible for evading synchronic ties to the peers from the same cohort/layer. Peers in the scholarly community do not prefer to report from each other. Peer avoidance is limited to this particular discursive sphere as they might otherwise be close friends[15]. The LRS effect is also responsible for investing in diachronic connections to the remote cohorts/layers from forgoing and successive generations (See Chapter 6 for macro level analysis, and Chapter 8 for micro level analysis and case studies). The LRS effect, I maintained, prompts outside connections, be they intergenerational (Chapters 6 and 8) or interdisciplinary (Chapter 7) and determines internal stratification of a group. The following question explores this issue.

Issue 6: How does a network of narrative gain a structure with powerful authorities despite the absence of formal centralized institutions?

I hypothesized that for centuries, patterns of language use coupled with social network structures produced and reproduced authority in the absence of a formal centeral institution (See Chapters 6 for macro level temporal analysis, Chapter 7 for interdisciplinary synchronic relations, and Chapter 8 for micro level temporal analysis and case studies). I argued that it is possible to identify and analyze these patterns by treating each social network as a discourse network as well. This argument led to the following two questions (Issues 7 and 8).

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[15] Vertical ties and peer avoidance is observable in other time-stratified networks as well. White contends that "Alternate generations are allies." He writes, "The prototype here is grandparents doting on their grandchildren and all conspiring to evade the parents' discipline, just as departmental heads and presidents may gang up on vice-presidents. One can transpose this proposition to any ladder of rungs in standings"

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Issue 7: Why did huffaz preserve Arabic for centuries although the majority of them were non-Arabs?

In reply to this paradox, I argued that the need for a *lingua franca* in an international community of intellectuals made non-Arabic huffaz accept and preserve the Arabic language. The languages that were spoken by the majority of the population such as Persian, Turkish or Berber were not in a privileged position to become the *lingua franca;* however Arabic was. This is because Arabic was the language of the Koran, and hadith, which were commonly accepted by all language groups from East to West in the Muslim community. Yet, Intellectuals did not passively learn and spread the narrative. As the following question also shows, they created multiple metannarratives and applied them on the material they received from the earlier generations of Arab scholars.

Issue 8: Why do not intellectuals feel content after gaining prominence in one intellectual field but constantly try to expand their area of interest and influence? How do scholars re-interpret the traditional narrative of their home discipline from the perspectives of the disciplines they are also involved in? What are the resulting structural features of such a multiple involvement?

I argued that efforts of social actors to reduce levels of reported speech (LRS) by eliminating discourse brokers in their network triggers multiple involvement in several fields at the same time. Scholars who are involved in multiple fields at the same time play the role of discourse broker and re-evaluate the material and perspective of their home discipline. Thus, there is an overlap of membership among different social and cultural domains or discourse networks. Since each discourse network has its own genre, joint membership in several networks requires mastering the genre of each network and

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(White 1993: 121).

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promptly switching among them when the networks or the involvement shifts. This finding led to the following rather broad and self-critical question.

> *Issue 9: Why has the promise of structuralism yet to be completely fulfilled although almost a century has passed after its first emergence?*

I maintained that because structuralists in human and social sciences ignored the diachronic discursive and social patterns, structuralist query has remained focused mostly on the synchronic axis. This disproportionate focus hindered the realization of the structuralist project originally suggested by Saussure at the outset of the century.

As detailed discussions of these issues demonstrated in the succeeding chapters, with the purpose of offering explanations to these issues, I exploited the contrast between diachronic and synchronic structures, on the one hand, and the contrast between social and discursive relations, on the other. In my arguments, I derived not only from sociologists but from linguists and human scientists as well. I constantly switched between these perspectives with the purpose of showing their inseparability. Without employing these paradigms simultaneously, it would have been difficult to discover the reciprocal relationship, I demonstrated, between discursive and social structures over time.

Organization of the Study

Following this brief introduction in Chapter 1, Chapter 2 will explore the monumental hadith transmission network in its historical context and in relation to other overlapping narrative traditions and networks in Islamic history. Chapter 3 will shed more light on the theoretical questions this study aims to raise. Chapter 4 will provide a

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closer look at the historical sources of social network data, their reliability, and the problems encountered in using them with a modern methodology. Chapter 5 outlines the methodological problems in analyzing cross-temporal or time-stratified networks. Chapters 6, 7 and 8 present the analysis and the findings on three levels following the research strategy suggested by Collins. He writes,

> What any individual will do at any moment in time, then, depends on local process; but what flows into these local situations comes from further away. Micro action is affected by the macro structure. The sheer number of persons in the field and the shape of their network connections is the macro context within which any micro situation is negotiated. A sociological theory can move in three directions from this point: (i) We can ask a still more macro question: what larger social conditions determine whether intellectual networks exist at all in given sizes and shapes? This directs us to the macro foundations of networks in politics, religion, educational organization and the like. (ii) We can concentrate on the shape of the network structure itself, and attempt to formulate principles for its dynamics over time. This leads us to considerations of the internal stratification of intellectual networks, and to the principle of change through structural rivalry that I call the "Law of Small Numbers." (iii) We can remain on the micro level and ask how the individual reacts to being in various positions within a network (Collins, Chp. 1, 32).

I deal with the second issue Collins mentions by analyzing the hadith transmission network on the macro level in Chapter 6. In chapter 7, I explore the first issue by drawing the broader social and cultural picture around the network analyzed here. Chapter 7 expands some of the questions already raised in Chapter 2. The former explores the overlapping subject matters of narrative traditions in Islamic culture while the latter explores the overlapping networks of intellectuals and the joint membership among them. Chapter 8 takes the analysis to the micro level. More concretely, Chapters 6, 7 and 8, tackle the question why some social actors, be they layers or individual

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scholars, in the hadith transmission network were more prominent than others. The analysis also demonstrates how metalanguage implicitly configures and re-configures social networks by reproducing social inequalities over centuries.

The macro level analysis applies time series methods borrowed from econometrics along with more conventional network methods in order to respond to the crosssectional character of current network analysis. Chapters 6 and 8 deal with the macro and micro level analyses of hadith transmission network respectively and explore the macro and micro level effects of the levels of reported speech (LRS effect) on the authority formation. While chapter 6 analyzes the connections among layers, chapter 8 takes the issue to the micro level and analyzes the connections among the most prominent three scholars from each layer. The macro level analysis treats each layer as an aggregate/corporate social actor and demonstrates how their structural positions shape their behavior.

In the final chapter, Chapter 9, I close the loop by tying the argument back to crossectional networks and social organizations in general. In this connection, I discuss the role of vertical and outward ties on social power. I also link the macro and microanalyses by concluding that the authority of a social actor, be it corporate or individual, comes from extensive outward network connections.

Above, I mentioned that this study has two goals: bridging the gap between (1) social and discursive structures, on the one hand, and (2) synchronic and diachronic structures, on the other. Chapter 3 is dedicated to the first issue while Chapter 5 is dedicated to the second issue. The rest of the study is an empirical application of the approach outlined in these chapters at different analytical levels. At the center of the analysis is the contrast between diachronic and synchronic structures, in one analytical dimension, and the contrast between discursive and social structures, in another analytical dimension. In accordance with the interpretive framework in use here, the tension

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between these structures is maintained throughout the study but not resolved, as conventional practice suggests, in favor of one side through reductionism.

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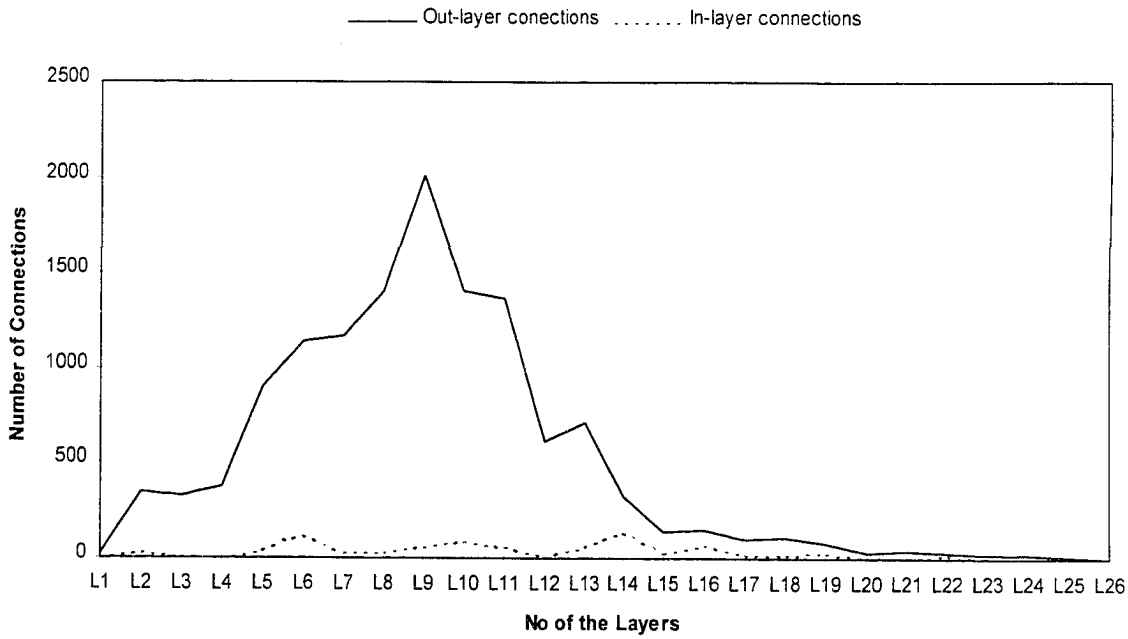
Figure 1.1: Out-layer (diachronic) and In-layer (synchronic) ties



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Chapter 2

Research Site

HADITH TRANSMISSION NETWORK: WHOSE NARRATIVE?

This chapter aims to provide a glance into the history and the system of hadith transmission network. First, it shows how hadith employs reflexive speech and social network. Second, it traces the lines in the evolution of hadith, into a monumental world narrative. Third, it explores how different components constitute the system of hadith transmission network, namely, the narrative, the metanarrative, and the narrator. Finally, it discusses the process of narration in timespace that brings them together.

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This study concentrates on the millennium long network of the highest world authorities in the field of hadith[1]. The social network of hadith scholars through which hadith came down to us is traditionally known as the *Isnad* system. The generic name for a prominent scholar of hadith is "muhaddith[2]" (pl. muhaddithun) whereas the title "hafiz" (pl. huffaz) is reserved for the stars in this selected group to begin with. The huffaz constituted an extremely minute group (around 3 %[3]) in the broader network of Muslim scholars and yet they had the authority to set the paradigm for their discipline to be followed by millions of scholars from all over the world.

The intellectual preoccupation of these scholars is known as the Science(s) of Hadith. "Science" (al-'ilm) here simply refers to a systemized body of knowledge. The Science of Hadith, as an academic study, is primarily a literary discipline dealing with the narratives about Prophet Muhammad, yet, it has far reaching ramifications in Islamic culture and society. It is considered to be the second source of Islamic faith and law after the Koran. Even today, it influences the thinking and behavior of more than a billion

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[1] "The Arabic word *hadith* has the primary connotation of 'new', being used as an antonym to *qadim,* 'old'. From this derived the use of the word for an item of news, a tale, a story or a report—be it historical or legendary, true or false, moral or scandalous, relating to the present or to the past. The word was employed in this sense by the pre-Islamic poets, and by the Koran and the Prophet. Storytellers, also, were called *huddath:* the purveyors of hadith. ... Since the lifetime of the Prophet himself the Muslims called reports which spoke of his actions and sayings 'the best *hadith',* and, in due course, the word became increasingly confined to such reports" (Siddiqi 1).

[2] Muhaddith (pl. Muhaddithun) is a generic name for the scholars of hadith. A hafiz (pl. huffaz), on the other hand, is a highly prominent muhaddith whose authority is acknowledged by the overwhelming majority of his colleagues and by Muslim public in general. (es-Salih 58-63). Since no one was seen immune of criticism in the Islamic scholarship, these titles have been contested (See in chapter 4 the biographical record of al-Tabarani).

[3] This estimation is based on a comparison of the number of scholars included in the two works of al-Dhahabi. His general biographical dictionary, *Tarikh,* only 38 volumes of which have been published yet. According to a conservative estimate, it includes forty thousand entries (1976:11). It is also claimed that it includes seventy thousand entries. His *Tadhkira,* which is about the *huffaz,* on the other hand, includes 1176 entries. The above ratio is based on the conservative estimate.

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Muslims, one fifth of the world's population. Ibn Khaldun designated a chapter in his *al-Muqaddima* (The Introduction) to the sciences in his time, among which the Science of Hadith occupied a distinguished place (II:447-463). He briefly introduced the subject matter of it as follows.

> The sciences concerned with Prophetic traditions (hadith) are numerous and varied. One of them concerns abrogating and abrogated traditions... Two traditions may be mutually exclusive, and it may be difficult to reconcile them with the help of interpretation. If, in such a case, it is known that one is earlier than the other, it is definite that the latter (tradition) abrogates (the earlier one). This is one of the most important and difficult sciences of tradition.
>
> Another of the sciences of tradition is the knowledge of the norms that leading hadith scholars have invented in order to know the chains of transmitters, the (individual) transmitters, their names, how the transmission took place, their conditions, their classes, and their different technical terminologies. This is because general consensus makes it obligatory to act in accordance with information established on the authority of the Messenger of God. This requires probability for the assumption that the information is true. Thus, the independent student must verify all the means by which it is possible to make such an assumption.
>
> He may do this by scrutinizing the chains of transmitters of traditions. For that Purpose, one may use such knowledge of probity, accuracy, thoroughness, and lack of carelessness or negligence, as the most reliable Muslims describe a transmitter possessing.
>
> Then, there are the differences in rank that exist among transmitters.
>
> Further, there is the way the transmission took place. The transmitter may have heard the shaykh (dictate the tradition), or he may have read (it from a book) in his presence, or he may have heard (it) read in the presence of the shaykh and the shaykh may have written (it) down for him, or he may have obtained the approval of the shaykh for written material (munawala), or he may have obtained his permission to teach certain traditions (ijazah).
>
> <Then there is difference> with regard to the (degree) of soundness or acceptability of the transmitted material. The highest grade of transmitted material is called "sound" by (the hadith scholars). Next comes "good." The lowest grade is "weak." (The classification of traditions) includes also: "skipping the first transmitter on Muhammad's authority" (mursal), "omitting one link" (munqati), "omitting two links" (mu'dal), "affected by some infirmity" (mu'allal), "singular" (shadhdh), "unusual" (gharib), and "singular and suspect" (munkar). In some cases, there is a difference of opinion as to whether (traditions so described) should be rejected. In other cases, there is general agreement that (they should be

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> rejected). The same is the case with (traditions with) sound chains. In some cases, there is general agreement as to their acceptability and soundness, whereas, in other cases, there are differences of opinion. Hadith scholars differ greatly in their explanation of these terms.
>
> Then, there follows the discussion of terms applying to the texts of the traditions. A text may be "unusual" (gharib), "difficult" (ambiguous, muskhil), "(affected by some) misspelling (or misreading)," or (containing) homonyms" (muftariq), or "(containing) homographs" (mukhtalif).
> On all these points, hadith scholars have laid down a canon explaining the (various) grades and terms, and adequate to protect the transmission from possible defects (Ibn Khaldun II: 447-451).

Hadith and muhaddith can be best understood in contradistinction with other major narrative traditions and narrator types in Islamic culture because both hadith as a narrative genre and muhaddith as a social actor gain identity in a much broader cultural and social structure in which they are embedded. The borders between these social and cultural artifacts, nevertheless, overlap. Among the major narrative traditions in Islamic civilization that are comparable to hadith are (1) the Koran, (2) the biography and battles of the Prophet (Seerah and Maghazi), (3) the history, and (4) the story (qissa). Each narrative tradition gave rise to a network of transmission analogous to that of hadith analyzed here. These networks overlap with each other as well as the network of other Islamic sciences such as Islamic law, theology and mysticism, for the majority of the huffaz were polyhistors with an expanded interest in several disciplines at the same time.

Hadith meta-narratives, on the other hand, can also be best understood in contradistinction with each other: (1) the Methodology of Hadith (*Usul al-Hadith*), (2) Methodology of Islamic Law (*Usul al-Fiqh*), (3) commentaries on hadith compilations, and (4) the biograhical dictionary literature (*tabaqat* and *tarikh*). Each metanarrative tradition developed a rather distinguished perspective on the same narrative material. For

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instance, the primary concern of the Methodology of Hadith is to verify the reliability of hadith by examining various aspects of the chain of narration, whereas the primary concern of the Methodology of Islamic Law is to derive legal ruling from hadith. Similarly, the primary concern of the commentaries is to analyze the vocabulary and different versions of the same narration, whereas the interest of biographical dictionaries is exclusively in the critical examination of authorities in the chains of narration.

Although reported speech and narrative is common to all social networks, hadith scholars proved to be very innovative in regulating the daily protocols of reported speech and narration in their community which allowed them to exercise a greater control on their social and cultural domain. The expressed purpose of hadith scholars was to be the guardians of the Prophetic narrative, and they are currently perceived as representatives of traditionalism in the Islamic culture. Ironically, as Ibn Khaldun mentioned above and as we will see below, they were great innovators. None of the concepts and techniques they used existed in the time of the Prophet. They are responsible for the creation of and the evolution of a grand world narrative, a worldwide social network, and the rise of a systematic and critical approach around it. They thus put innovation in the service of tradition, and triumphantly contested other competing narratives and metanarratives that strove for dominance in the cultural and social space.

The question of what gave rise to the hadith transmission network still remains to be fully addressed from a social and cultural perspective. It is not my purpose here, nor is it possible with the current level of knowledge, to formulate a complete explanation of this question. Thousands of manuscripts, scattered all over the world, that might shed light on the issue have yet to be published. However, I can cite some converging interests

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which might be considered as probable reasons that contributed to the emergence of the hadith transmission network: (1) the Prophet's constant injunctions to his Companions on transmitting his words to others, (2) the efforts of converts to learn the true teaching of the Prophet, (3) the efforts of state and jurists to preserve the integrity of one of the sources of law, (4) the social status which the society bestowed on the scholars dealing with the narratives of the Prophet, (5) the sectarian conflicts that strove to support their views on the narratives of the Prophet and to destroy the narratives of the other side.

The centrality that hadith gained owing to the above reasons in Islamic historiography, literature, religion, politics and law heightened the competition for gaining authority in the hadith transmission network. The more emphasis given to the narrative the more narrators competed with each other to be the authoritative voice. Of the millions of students from all over the world involved in the study and scholarship of hadith, a tiny group, to be called later as huffaz prevailed for a millennium until their network came to an end. The title hafiz is later construct in Islamic history and their network was retrospectively reconstructed and recorded in great detail by the historians who studied them.

Figure 2.1: 26 layers of prominent hadith scholars, 610-1505

The majority being non-Arab, they came to Islam and to the study of hadith from divergent ethnic, geographic, social and linguistic backgrounds. Bulliet showed how

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certain patriarchal families in Nishapur maintained centrality for ages in which case the intellectual and the familial genealogy converged (Bulliet 1972, 1979).

The end of huffaz in the hadith network, a begging question, on the other hand, can simplistically be attributed to the decline of Islamic civilization. The debate about the rise and fall of Islamic civilization still continues while some still believe it is alive and a major power in the world (Huntington 1996), yet its contribution to human culture is not on the level as it was during middle ages. To be sure, the dynamism in scholarship departed or weakened in culture and science especially before colonization. If there was such a comprehensive trend, which is hard to establish, responsible for the civilizational decline, hadith scholarship also got its share from this decline. Was there a link between the death of Ibn Sina, and Averroes and the death of Bukhari and Ibn Hajar? Istanbul was conquered in 1453 while Suyuti, the last known hafiz, died in 1505. The decline of hadith scholarship comes at a much later time compared to the decline in Islamic philosophy and science and perhaps for different reasons which I will address below.

The end of huffaz, I will argue, was due to the triumph of written mode of narration over oral mode. An inherent tension between different modes of narrative, namely between written and oral, characterized the transmission from the beginning on. In connection with this, I will argue that the end of the network of huffaz was an unintended and unanticipated outcome of their very success in gaining absolute authority in the field of narratives of the Prophet, chiefly marked by the rise of the Six Canonical Books and the institutionalization and standardization of hadith education. There was not much left to be done, reflecting the prevailing scholastic approach in his time, to the following generations, Ibn Khaldun (1332-1406) writes (II: 456).

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> At this time, traditions are no longer published, nor are the (publications of) traditions by former scholars corrected. Common (experience) attests the fact that these numerous religious leaders, close to each other in time, were too capable and too firmly possessed of independent judgment to have neglected or omitted any tradition, so that it is impossible that some later scholar might discover one. (Therefore), at this time, one is concerned with correcting the principle written works, with fixing the accuracy of their transmission, and with establishing continuous chains of transmitters leading back to the authors, chains that are sound throughout. With very few exceptions, no attention has been paid to more than five works (Ibn Khaldun II: 456).

Below, I will briefly survey the evolving history and the rather dynamic and unstable system of hadith transmission network.

A Structure from Reflexive Speech

"All those who listen to me shall pass on my words to others and those to others again; and may the last ones understand my words better than those who listen to me directly." Narrative has it that with these words Prophet Muhammad concluded his Farewell Sermon which he gave atop his camel in the middle of the Arabian Desert near Mecca during his Farewell Pilgrimage (CE 631). Following the Prophet's oft-repeated instruction, as they had usually done since the beginning of Muhammad's Prophethood, his Companions carefully recorded in their memories the exact words they heard and the exact deeds they saw in order to convey them to their families, friends, tribes and especially the next generations. One wonders if they ever imagined to what extent their speech, reported over and over by subsequent narrators from east to west, contributed to the timeless social-literary monument which the hadith transmission network became.

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Hadith, the reflexive speech[4] by which we know retrospectively what the Prophet said and what he did not say, constituted the impetus for a network of narrators. In an attempt to control fictive narrative, narrators of hadith from subsequent generations insured that they learned the authorities through which the narrative reached down to them. This stemma or chain of authorities came to be called *isnad,* literally "support" or "backing." In a few centuries after the Prophet's demise, chains of narrators grew longer.

From this process emerged the structure of hadith with its two elements: the chain of narrators (*isnad*) and the narrative text (*matn*), together constituting a new style of narrative. For interpretation, the chain needs to be contextualized in timespace as part of a larger network of narrators; and the text in the metanarrative as part of larger network of narratives. Thus a reader has to pay attention to time and space in the chain and in the text. The following example from Bukhari's hadith compilation will illustrate this better. Dates of death, according to the Hijrah calendar[5], and names of the places where the narrators lived have been added so as to better visualize dissemination of narrative across generations in time and space.

> [Bukhari (194-256, Bukhara) wrote], **Al-Humaidi Abd Allah ibn az-Zubair** [d. 143, Mecca] related to us saying: **Sufyân** [107-198, Mecca] related to us, saying: **Yahya ibn Sa'id al-Ansâri** [d. 143, Medina] related to us, saying: **Muhammad ibn Ibrahim at-Tamimi** [d. 120, Medina] told me that he heard **'Alqamah ibn Waqqâs al-Laithi** [d. 80, Medina] say: I

[4] The present approach is particularly interested in the constructive role of reported speech, the most important subsection of reflexive speech, which is defined as language use that re-presents its own structure and use, including everyday metalinguistic activities of reporting, characterizing and commenting on speech (Lucy 1993: 1-2). Conversly, object language refers to objects, but not to speech. Daily language incorporates both forms which serve different (meta)semantic, and (meta)pragmatic pusposes (Lucy 1994; Silverstein 1994; Morson and Emerson 1990: 123-171; Bakkhtin 1981: 261-263; White 1995).

[5] Hijrah dates are denoted usually by AH, which begins with the flight of the Prophet from Mecca to Medina in CE 620. The dates reported in this study is CE unless otherwise indicated.

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> heard **'Umar ibn al-Khattab** [d. 24, Medina] say on the pulpit: I heard the Apostle of God [d. 10, Medina], peace be upon him, say: "*Behold, the actions are but [judged] according to the intentions; and, behold, unto every man is due but what he intended. Thence, whoso migrateth for the sake of this world or to wed a woman, his migration is [accounted] for that unto which he migrated*" (Asad 1981:3-4)[6].

Reflexive speech interconnected generations of narrators to each other, thus playing the most crucial role in the construction and perpetuation of the network. Object language usually establishes ties between the present actors but reflexive language has the power of engaging actors in a widespread network, thereby demonstrating explicitly the relationship between literary and social structures. Without the reflexive power of language, it would have been impossible to interconnect multitudes of narrators in a social network.

The protocol of narration or reporting speech came under close scrutiny among hadith narrators because of its consequences on the authenticity of narration. There are a multiple number of phrases used to indicate the transmission of narrative from one scholar to another. Each one of these phrases reflects a type or an aspect of the connection between the teller and the listener (es-Salih 70-84; Cakan 60-63). (See also Rule 5 below in the discussion of methodology of hadith). For instance, "I heard from x," is not the same as simply saying "from x." The former specifies the coexistence in time and space as well as direct hearing, while the letter keeps all these ambiguous. Similarly, "x told

[6] This hadith was narrated through several chains, slightly differing in the phraseology of the text, with an increasing spread in "depth" and "breath" (Ayni 16-35). It reflects the "disjointed" form of hadith genre, which gives the impression that a speech event is separated from larger context. This larger text is intentionally broken, leaving the question of what happened before and after unaddressed. If we want to reconstruct the sequential order of the events, we will need to piece this hadith with others. These features will be further elaborated later in the discussion.

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me," is not the same as "x said." In the former, it specifies that it was a direct and personal contact, whereas in the latter, this is not clear.

Attempts to codify and rank protocols of reported speech did not gain unanimous support from the narrators. Yet, the *isnad* and the hadith are classified according to the phrases used to indicate reported speech (Kocyigit 117-131)[7]. For instance, the famous Bukhari, author of the most respected hadith compilation, considered all phrases used in reporting speech to mean that both the teller and the listener were in the presence of each other and the narration was direct because, he argued, this is the only acceptable way of secure transmission. His standards, however, were hard to attain by the majority who used less strict criteria.

The authorities in the chain of narrative are linked to each other through reported speech until it reaches to the Companion who narrates a brief story about the Prophet or a saying by him. Therefore hadith employs both reported speech and narrative in the chain of authorities and in the actual text of narrative. The language use in the chain and the text of hadith displays different patterns and thus should be treated differently.

The structure of hadith makes explicit the ways in which literary and social structures bear upon each other by systematically recording what goes unnoticed in our daily life. In hadith, the structure in which the narrators and the narrative are embedded, which is only hinted at in varying degrees in other narrative social structures, is made explicit in writing. What are narrated are not only the texts but also the chains of

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narrators through whom the narrative traveled in timespace. The cultural subtext that comes with the narrative, without which it is impossible to interpret the narrative structure, is called metanarrative (White 1973; Waugh 1984; Somers 1995).

From the time of the demise of Prophet Muhammad (632), a social structure and a critical approach developed around hadith narration, which transformed this artifact from a conventional narrative into a "science" with formal rules and terminology. The political, religious, and legal importance of hadith in social life, as the second scripture of Islam after the Koran, reinforced this process. The size of the network grew as Islam spread to other nations. Later, however, despite the continuous expansion of Islamic territories, the size of the network shrank.

The protocols of reporting speech and the producers of narration are common to all social networks. We are all implicitly aware of them because we strategically employ them in our day to day life. Yet, they are not exposed as much. Nor, as sociologists and linguists, do we emphasize their power in shaping our knowledge and relations.

Content, Form and Network Spread of Narrative

How does the content and form of narrative bear upon the spread of its network? Hadith metanarrative tells us nothing when it comes to exploring the relationship between literary structure of hadith and the configuration of its transmission network. This is because of, as I pointed out earlier, a traditional referential approach to narrative. In

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[7] For instance "mu'an'an" hadith denotes that in the *isnad* narrators reported the hadith from each other using the adverb ('an) which literally means "from." An example would be like saying "from x that he said..." Here the way the speech was heard is not specified. This ambiguity might cause ambivalence of the listener to the hadith reported. Another type is "mu'en'en" in which case the hadith is reported as "*haddethana fulan enne fulan qal*" (such person told me that verily such person said). The word "enne" (verily) makes the connection stronger.

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dealing with this question, insight will be derived from Hayden White's work on the content of the literary form of narrative 1987), and from Ong's work on oral and literary usage of language (1982).

As Ong (1982) and Eco (1994: 127-128) argue some narrative structures are more likely than others to spread and consequently will be associated with larger networks of narrators. Ahadith (1) with shorter sentences (additive style), (2) with mnemonic structures (formulaic), and (3) with stories were more likely to spread compared to longer texts with plain prose and those dealing with legal injunctions. Ong's study about orality and literacy argues that narrative is the most convenient way for an oral culture to store and organize knowledge (1982: 31-77). There are, however, constraints on the length and structure of narrative because of the limitations of human narrative in an oral culture. In line with Ong, although from a different point of view, Eco argues that "disjointed" narrative is more appealing and all the cult narratives share the disjointed structure (1994: 127-128)[8].

A hadith has the form of a brief narrative, a "sound byte," or a snapshot from the life of the Prophet, unencumbered with causal or chronological context. What did hadith-narrators intend to do by creating this form? Hayden White argues that not only the text but also the form of a narrative has a content (1987). From this perspective, it is possible to ask what meaning the form of hadith narrative carried? First of all, this form of narrative fostered their identity in distinction from those who practiced other forms of

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narrative. The disjointed, plotless, and unsequential form differentiated hadith-narrators from other communities[9] which dealt with hadith: storytellers (qussas), historians and biographers who presented their material in a coherent chronological order, a logic that was achieved, hadith-narrators charged, by extensive use of fiction (Suyuti: 1972). Narrative thus constructed, however, proved to be more appealing to the general public, which constituted a niche for the fictive mode of narrative about the Prophet in contradistinction to the empirical mode of jurists and hadith-narrators. The dislike of certain hadith scholars for the story-tellers and even for historians, and the apologetic reaction of others in defense of history is a well-known facet of Islamic intellectual history.

Time, sequential order and chronological coherence, whether found as Ricoeur argues, or founded as Barthes claims were not a central concern of hadith-narrators. Aristotle defined the plot (the mythos) as the "arrangement of incidents" to be imitated by the narrative through mimesis (Chatman 1978: 43). Ricoeur argues that mimesis is not straightforward: the mimetic process is a symbolic/allegoric representation in language of the universal human experience of temporality in actual or fictive events (White 1987: 169-184, Ricoeur 1984). Conversely, Barthes argues that "narrative's function is not to

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[8] Three examples of hadiths with large network spread, more than ten narrators in each generation. The prime example used by hadith scholars is "Whoever lies about me should get ready for his seat in Hellfire." Another example, "Water is from water." The last example, "The Muslim is the one from whose hand and tongue others are safe." Phraseology may change and the hadith may be embedded in a brief story contextualizing the text, based on the transmission chain.

[9] Identity came from style. Although the identity "hadith-narrator" (muhaddith) runs constant, the community of hadith narrators was further differentiated by other identities, depending on position in the network: Companion vs. Successor; hafiz vs. shaikh; reliable vs. unreliable, etc. Furthermore, multiple identities arising out of membership in more than one network is not unusual: jurist and muhaddith, muhaddith and reciter (qari); or muhaddith and sufi.

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represent, it is to constitute a spectacle."[10] For Barthes the coherence, unity, and naturalness of the text out of sequence are "myths" to be denied by the critic whose task is to ceaselessly break and interrupt the narrative text, and disregard its seemingly natural divisions (Barthes 1974: 13-16; 1988: 95-150).[11] Linear time was not, to early hadith-narrators, an integral part of events anyway because the concept came into Arab culture late during the Caliphate of Umar, the architect of the Hijrah calendar.

More importantly, there seems to be a crucial pragmatic concern, as well, illustrated in the form of hadith. Disjointed narrative proved to be a mnemonic structure, more memorable, easier to recall and disseminate, and more compatible with the functioning of the oral mind (Ong). Thus the more broken a text, *a la* Barthes, the easier its dissemination[12]. I conjecture, in this connection, that hadith owes its large spread primarily to its disjointed form. If hadith had the form of an integrated single long text, only a selected few who had the dedication and means could have had access to it[13]. The most-spread hadith, usually referred to as "mutawatir." If this is true, then, one can conjecture, those narrators with mnemonic narratives in their repertoire will become more prominent.

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[10] "Society is a spectacle he [Barthes] can help explain, by revealing to us some of the mechanisms by which it obscures its artificiality" (Sturrock 1979: 61).

[11] "We shall therefore star the text, separating in the manner of a minor earthquake, the blocks of signification of which reading grasps only the smooth surface, imperceptibly soldered by the movement of sentences, the flowing discourse of narration, the "naturalness of ordinary language" (Barthes 1974: 15). See also Hayden White (1987: 35-36; Sturrock (1979: 52-80).

[12] In fact, even in our secondary oral culture, all daily narrative is broken; we have to break it to be able to carry on our daily activities.

[13] Such an example is provided by Reynolds and Wilson in *Scribes and Scholars: A Guide to the Transmission of Greek and Latin Literature.* Stemmatics produce transmission networks similar to *isnad*, but with a rather limited spread (190).

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The History

Islam emerged in Mecca (610), and with the flight of the Prophet to Madina, known as the "Hijra" (620), the first Islamic city-state was established. Soon, the Prophet conquered Mecca, where the Ka'ba is located. Expansion of this new religion and conversion to it was very swift; during the lifetime of the Prophet, almost all Arabia converted to Islam. The emphasis during the time of the Prophet was on the Koran, the revelation of which was completed in 23 years (610-632) in the midst of struggle for survival. However, he always encouraged his Companions to commit his deeds and words to their memories and relay them to others, continuously warning them at the same time not to mix his words (hadith) with the words of the Koran.

As Islamic territory expanded, conversion to Islam (Bulliet 1979) continued during the time of the Four Rightly Guided Caliphs, Abu Bakr (623-34), Umar (634-44), Uthman (644-56), and Ali (656-61), who kept Madina as the center of the Islamic empire. By the end of the first century of Islam, the boundaries of the Islamic state reached to India and Anatolia in the north, and to Spain in the West. Concurrently, the size of the hadith transmission network also expanded, involving new Muslims from non-Arab nations who had to learn Arabic before they studied hadith.

It was not possible to keep political unity in such a vast empire. After the Prophet, conflict and divisions rose among his Companions over the issue of leadership, which gave rise to a still continuing division between Sunnis and Shiites. The Sunni community did not see lineage from the Prophet as a prerequisite for succession and voted for leaders

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who were not necessarily from the household of the Prophet. The Shiite community gathered around the household of the Prophet, especially his son-in-law, Ali, the fourth Rightly Guided Caliph. This political division had an impact on hadith narration, Islamic law and theology. The majority of the Sunni hadith-narrators disregarded these political and theological differences when it came to reporting narrative as long as the narrator was qualified in the field of hadith. Dhahabi wrote, "what became established for us is that affiliation to conflicting Schools (madhhab) does not matter in narration. We do not accuse People of Qibla (those who turn to Mecca in prayers) with apostasy" (Dhahabi 1991: 85-87).

When the Umayads took power, they made Damascus the capital of the state. Consequently, it became the intellectual center. The Abbasids moved the capital to Baghdad, making Iraq a cultural center as well. Prior to the Mongolian attack which destroyed Baghdad, disunity and internal conflicts prevailed among Muslims. However, their intellectual achievement was spectacular. Islamic culture was nourished by internalizing the cultural legacy of people in the conquered lands. Science, law, linguistics, philosophy, mysticism and the arts developed. The study of hadith reached its peak during this period; also, hadith compilations, biographical dictionaries and the methodology of hadith that are still in use among Muslims today developed.

In the subsequent centuries, hadith transmission continued in an environment characterized by Mongolian attacks, Crusades, and the rise and fall of empires. In the Ottoman education system, hadith occupied a central place in the universities founded by Ottoman sultans. The education in hadith colleges revolved around the most reliable compilations. Scholarship among the Ottoman ulama focused on reorganizing the

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material collected by earlier generations and producing commentaries on them, for the belief that the gate of free-legal-reasoning (ijtihad) was closed. Ottoman scholars dedicated themselves to preserving and refining the legacy of the earlier generations of scholars, while maintaining the interpersonal or clientalist character of education despite a highly structured and institutionalized education system.

Rise of a Narrative Social Structure

The historical roots of the hadith transmission network can be traced back to the pre-Islamic culture of Arabia. The "bookless" culture of pre-Islamic Arabia required illiterate Arabs to make use of their memory extensively in their cultural and daily affairs. Memorizing poems and genealogies of tribes, families and famous figures was an integral part of this culture, especially for the cultivated few. With the advent of Islam, memorization found a new area of application; the Arabs began memorizing the Koran and the words of the Prophet. Later, after the demise of the Prophet, when knowing the ties among hadith narrators became important, they began memorizing the connections between narrators, which was a body of knowledge formally very similar to that of tribal or familial genealogies.

According to various historical accounts, there is no clear beginning in the creation of the hadith transmission network and the sciences of hadith which evolved, during the first two centuries of Islamic history. The hadith transmission network was rooted in the attempts of the Muslims to preserve the integrity of the teachings of Prophet Muhammad, which they soon realized depended on a reliable transmission network.

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Forgery, motivated by sectarian and political interests or simply by mythical and fictional impulse, was against the interests of the Companions of the Prophet, the new converts, and the state. The Companions of the Prophet were entrusted by the Prophet to protect his legacy from forgery. It was also in the interest of the new converts to learn the authentic teachings of the Prophet. Furthermore, it was in the interest of the state to protect one of the principal bases from which Islamic law was derived. These efforts eventually led to the transformation of narrative from an art into a "science" which resulted in the establishment of the "Science(s) of Hadith", with its numerous branches, alongside the emergence of the transmission network of hadith that had survived for 14 centuries until today.

Memorization, along with writing, played an extensive role in the hadith transmission network (Abbott 1957-1972; Gellens 1990; El Moudden 1990). Writing accompanied memorization from the beginning, continually increasing in significance. Memorization of the Koran and hadith is considered in Islam a type of worship (Smith 1993, Cragg 1973, Coward 1988, Graham 1987). In the first layer, only a few mastered writing and were allowed to write hadith. Others relied on their memory. Memory was valued higher than writing in this oral culture[14]; even the Prophet himself was unlettered. The number of hadith memorized by narrators is, by definition, correlated with the level of their knowledge.

[14]See Hart (1994, deriving from Ong, and Jameson) for the usage and role of narrative prior to the arrival of written culture among Greeks "as members of an essentially oral culture that used "stories of human action to store, organize, and communicate much of what they (knew)" (Ong 1982: 140), with a way to understand the past and set moral boundaries for future behavior. Narrative in Greece has long been "a socially symbolic act," reaching beyond description and into the realm of signification of experience (Jameson 1981)" (1994: 632).

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One after another, great inventions by the collectivity of scholars emerged in scattered places. They contributed to the evolution of a narrative social structure. Muslims innovated a special unit of exchange, "hadith", a special type of social relation, "*riwaya*", meaning exchange of hadith; a special identity, "*muhaddith*", meaning expert in hadith; a special network, *isnad*, meaning tracing the knowledge to its source or simply "support"; as well as special criteria to distinguish various types of transmission chains. To insure the proper operation of the network, they also innovated formal rules regulating the whole process, *Usul al-Hadith*, the Methodology of Hadith. These rules determined the inclusion in and exclusion from the hadith transmission network, and thus the scholarly activity of the narrators, the moral standards of their behavior, their relationships (as teacher-student) with each other, and the authenticity of hadith in circulation. Multiple identities, such as *hafiz,* "well-known", "obscure", "trustworthy" and "liar", showing ranks and structural positions of narrators emerged and conflicted with each other in attempts to control the process of narrative dissemination.

Despite all these efforts for control, forgery continued, leaving devout followers of the Prophet, with an obligation to painstakingly search for his authentic narratives. Scholars of hadith, *al-muhaddithun*, more than others in the Muslim community devoted their lives to this task and developed a vocation out of it. "On the whole, the traditionists, especially the pious ones who refused to serve the government as judges, paid greater attention to the *isnad*'s than did the rank and file of the legal profession and the rank and file of the historian" (Abbott 1967: 2).

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Expanding Network and Shifting Center

Hadith transmission network must be perceived against a larger historical background. External forces on hadith transmission network reveal themselves when we look at the shifting centers of hadith through time: (a) Mecca (610-620): the genesis of Islam, (b) Madina (620-661): the first Islamic state under the Prophet and his successors, (c) Syria (661-749): the Ummayyad Empire, and (d) Iraq (749-1258): the Abbasid Empire. These cultural centers, with hadith as the integral part, were at the same time political centers of the time, which demonstrates the linkage between political and cultural history of Islam.

The number of hadith-narrators who populated a city gives us a quantitative measure to determine the center of hadith narration (Ibn Hibban) (See below Figure 2.3: Shifting centers of network through time). In Mecca the total number of Muslims did not exceed a few hundred. They gathered around the charisma of the Prophet and bore the pressures of rebelling against the dominant religion, culture and structure (Dabashi 1989). In Medina, however, the total number of Muslims, who came from all sorts of social, cultural and religious backgrounds, reached to thousands[15].

Disciples of the Prophet came to be known as the Companions. The mostly commonly accepted criterion of being considered a Companion was to have a direct tie to the Prophet in his lifetime. Those who lived at the same time with the Prophet without a direct tie to him are called al-Muhadramun. In the time of the companions, Madina

[15] The number of Companions included in the classical works vary. Qurtubi (AH 463/107) included 3500; Ibn al-Athir (AH 630/CE 1233) 8000, and Ibn Hajar (AH 852/1448) 12279 biographies in their biographical dictionaries exclusively dedicated to the Companions. The total number of Companions is reported by conflicting sources to be from 40 to 120 thousand.

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remained as the center of hadith, although new centers began to emerge with its 152 narrators, 23 of them being the most prominent. They occupied themselves primarily with teaching hadith to the young generations, who are called Successors (layer 2-4). Among themselves, however, they had very little narrative exchange.

Figure 2.2: Narrative ties among Companions

In the time of Successors--those who had a direct tie to at least one Companion--Syria, in particular Damascus, the capital of the Ummayad Empire, emerged as the center of hadith with its 172 hadith narrators. The number of narrators who lived in Mecca was 70, a number that dropped even further later during the time of Successors of Successors--those who had a direct tie to at least one Successor (layer 5-7). In the time of the Successors of Successors, Iraq emerged as the center: Basra with its 107 narrators, and Kufa with 98.

Figure 2.3: Shifting Centers of the Hadith Transmission Network

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The life spans of generations overlap and are indeterminate. Death of the last narrator from a layer marks its end. The era of Companions (layer 1) ended at AH 110/CE 728, Successors (layer 2-4) at AH 180/CE 796, Successors of Successors (layers 5-7) at AH 220/CE 835, the Successors of Successors of Successors (layer 8-10) at AH

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260/CE 873, and the Successors of Successor of Successor of Successors at AH 300/CE 912. Companions lived between BH 10-AH 110 (120 years); Successors lived between AH 12-180 (168 years); their Successors lived between AH 110-220 (110); their Successors lived between 180-260 (80 years); and their Successors lived between AH 220-300 (80 years) (Cakan 1993: 70-80).

Table 2.1: Longevity of Layers and scholars

Figure 2.4: Longevity of Layers

Expanding Territory and Shrinking Network

The size of the narrative social structure that developed around hadith changed over time, giving it the shape of a bell curve (See Figure 2.1). There were 23 prominent narrators in the first layer. This number went up to 127 in layer 8 and came down to 11 in layer 24. I have already mentioned that the expansion of the network was due to the spread of Islam from Central Asia to Spain.

However, after a while, the pace of the network spread slowed down and stopped. Although the Muslim territory continued to expand until the sixteenth century towards Anatolia, the Balkans, and India, along with considerable losses in Spain[16], the size of the

[16] See, "The Expansion of Islam, c. 1258-1503" (Hodgson 1974: 532-574).

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hadith transmission network began to shrink after the tenth layer, which meant that fewer and fewer scholars reached the level of *hafiz*, a scholar who, by definition, could relate thousands of ahadith from his memory (Eickelman 1992). This should not mean that the interest in hadith decreased. The pressing question then becomes why the size of the hadith transmission network shrank although there was significant increase in the population and in the level of scholarly interest in hadith.

Shrinking size of the network, or the decrease in the number of hafiz-narrators in a layer, was primarily due to the spreading institutionalization of hadith education (Okic 1959: 101-102, 105-114; Stanton 1990; Makdisi 1981,1991)[17] which canonized certain collections as being the most reliable insuring a perception of reliability to the students of hadith[18]. These collections, usually referred to as "the Six [Most Reliable] Books", included books authored by Bukhari (d. AH 256) (Fadel 1995), Muslim (d. AH 261) (Robson 1949), Tirmizi (d. AH 273), Nasai (d. AH 303), Ibn Maja (d. AH 273), Abu Dawud (d. AH 275) (Speight 1970). All of these late authorities were non-Arabs which

[17] Sultan Nuruddin Mahmud (d. AH 569) opened the first "Dar al-Hadith" (College of Hadith) in Damascus and appointed the celebrated Ibn al-Asakir as its dean. It was followed by al-Kamiliyya College in Cairo at AH 622, Ashrafiyya College at AH 626, Urwiyya College at AH 620 both in Damascus. These early institutions provided models for later Hadith Colleges which spread quickly around the Islamic world (Okic 1959: 105-107; Makdisi 1981).

[18] The impact of distrust with writing and the gradual transition from oral to written narrative around the same time can be observed elswhere in the world as well. Kaufer and Carley write, "..the English courts admitted written documents as admissible evidence only when used to corroborate oral oaths and testimonies. It was only since the 12th century that medieval England gradually--over a 200-year period--began to build the infrastructure required to entrust their societal transactions to written records (Clancy, 1978). A similar ebb and flow of trust and suspicion is evident in the passing of electronic communications" (1993). See also Ong 1982.

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illustrates how hadith spread across lands and layers within a polycentric structure[19] (Bulliet 1979:8).

The decrease in the number of hafiz-narrators continued until layer 19, with 12 narrators. From that point on, the thinning size of the network became stabilized. Its lowest point was in layer 23 with only 9 narrators. This shows that the network of hafizs did not completely disappear. Suyuti ends his biographical dictionary with the life of his teacher Ibn Hajar, by saying "the gate was closed after him, and this enterprise ended with him" (Suyuti 1983: 553).

The triumph of written narration over oral largely accounts for the shrinking size of oral narrative networks worldwide with the spread of literacy (Ong 1982; Scholes and Kellog 1966, Pederson 1984). The narrative does not die but disseminates through a new mode of narration. As the size of the new network based on the new mode of narration expands, the old one shrinks, eventhough it does not disappear completely. The proliferation of hadith colleges with similar curriculum based on the Six Books all over the Muslim lands can be considered as the success of hafiz-narrators in their goal to preserve the legacy of the Prophet and the unity of his followers, ummah, around it, which they called People of Tradition and Unity, ahl as-Sunnah wa al-Jamaah. Ironically, their success undermined the foundation of their own existence. Their network became, in a sense, the victim of their very success.

[19]This view is in line with Ibn Khaldun's argument that the contribution of non-Arab scholars to the development of Islamic sciences had been greater than that of Arab scholars (Ibn Khaldun vol. 3, pp. 311-315).

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Hadith Compilation

The Prophet was concerned that his Companions might confuse the Koran with hadith. Hence he prohibited those who were incompetent in writing from writing down hadith while he strongly encouraged everyone to write down the Koran. It was quite possible that Arabs who were new to writing might not be able to distinguish in their notes what was meant to be the Koran as opposed to hadith. Yet, the literate and well-educated Companions got special permission and encouragement to record hadith in writing. However, the general attitude towards recording hadith had been ambivalent among the Companions because of their concerns that the future generations might place equal importance on hadith and Koran.

Yet, after the Koran's authority was completely established, this risk waned during the time of the Rightly Guided Caliphs and consequently attempts to collect hadith and write them down increased. Hadith compilation reached its peak with the emergence of the Six Reliable Books that we discussed above. These six books gained the highest authority among thousands of other books. They are still highly regarded by Muslims with thousands of scholarly works produced on them.

Hadith compilation as a literary genre presents a great diversity: *sahih* type (collections of authentic hadith), *sunan* type (topically organized), *musnad* type (organized by the name of the Companion), *juz* type (small collection), and the like. Each type serves a different need.

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Methodology of Hadith Criticism: Usul al-Hadith

Parallel to the emergence of hadith compilations in volumes, a new genre also emerged, the critique of hadith. Scholars of hadith referred to it as the Science(s) of Hadith (*Ulum al-Hadith*), the Science of the Terminology of Hadith (*'Ilm Mustalah al-Hadith*), or the Methodology of Hadith Criticism (*Usul al-Hadith*). This genre gradually developed over centuries.

Amongst the early scholars of hadith, the rules and criteria governing their study were meticulous, but some of their terminology varied from scholar to scholar, and their principles began to be systematically written down, scattered amongst various books. One of the outstanding and path breaking works is *Al-Risalah* of al-Shafi'i (d. 204), the introduction to *the Sahih of Muslim* (d. 261) and *the Jami' of al-Tirmidhi* (d. 279); many of the criteria of early scholars, for instance al-Bukhari, were deduced by later scholars through a careful study of which reporters or *isnads* were accepted and rejected by them.

One of the earliest examples of a comprehensive work is the work by al-Ramahurmuzi (d. 360). The next major contribution was *Ma'rifah 'Ulum al-Hadith* by al-Hakim (d. 405), which covered fifty classifications of Hadith, but still left some points untouched; Abu Nu'aim al-Isbahani (d. 430) completed some of the missing parts to this work. After that came *Al-Kifayah fi 'Ilm al- Riwayah* of al-Khatib al-Baghdadi (d. 463) and another work on the manner of teaching and studying Hadith; later scholars were considered to be greatly indebted to al-Khatib's work.

After further contributions by Qadi 'Iyad al- Yahsubi (d. 544) and Abu Hafs al-Mayanji (d. 580) among others, came the work which, although modest in size, was so

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comprehensive in its excellent treatment of the subject that it came to be the standard reference for thousands of scholars and students of Hadith to come, over many centuries until the present day: *'Ulum al- Hadith* of Abu 'Amr 'Uthman Ibn al-Salah (d. 643), commonly known as *Muqaddimah of Ibn al-Salah*, compiled while he taught in the Dar al-Hadith of several cities in Syria.

Some of the numerous later works based on that of Ibn al-Salah are: An abridgement of *Muqaddimah*, *Al-Irshad* by al- Nawawi (d. 676), which he later summarised in his *Taqrib*; al-Suyuti (d. 911) compiled a valuable commentary on the latter entitled *Tadrib al-Rawi. Ikhtisar 'Ulum al-Hadith* of Ibn Kathir (d. 774), Al-*Khulasah* of al-Tibi (d. 743), *Al- Minhal* of Badr al-Din b. Jama'ah (d. 733), *Al- Muqni'* of Ibn al-Mulaqqin (d. 802) and *Mahasin al-Istilah* of al-Balqini (d. 805), all of which are abridgements of *Muqaddimah* of Ibn al- Salah. *Al-Nukat* of al-Zarkashi (d. 794), Al-*Taqyid wa 'l-Idah* of al-'Iraqi (d. 806) and *Al-Nukat* of Ibn Hajar al-'Asqalani (d. 852), all of which are further notes on the points made by Ibn al- Salah. *Alfiyyah al-Hadith* of al-'Iraqi, a rewriting of *Muqaddimah* in the form of a lengthy poem, which became the subject of several commentaries, including two (one long, one short) by the author himself, *Fath al-Mughith* of al-Sakhawi (d. 903), *Qatar al-Durar* of al- Suyuti and *Fath al-Baqi* of Shaykh Zakariyyah al-Ansari (d. 928)[20].

[20] Other notable treatises on Mustalah include: *Al-Iqtirah* of Ibn Daqiq al-'Id (d. 702). *Tanqih al-Anzar* of Muhammad b. Ibrahim al- Wazir (d. 840), the subject of a commentary by al-Amir al-San'ani (d. 1182). *Nukhbah al-Fikr* of Ibn Hajar al-'Asqalani, again the subject of several commentaries, including one by the author himself, one by his son Muhammad, and those of 'Ali al-Qari (d.1014), 'Abd al-Ra'uf al-Munawi (d. 1031) and Muhammad b. 'Abd al-Hadi al-Sindi (d. 1138). Among those who rephrased the Nukhbah in poetic form are al-Tufi (d. 893) and al- Amir al-San'ani. *Alfiyyah al-Hadith* of al-Suyuti, the most comprehensive poetic work in the field. *Al-Manzumah* of

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The System

Narrative system is constituted by a (1) narrator and (2) listener(s), (3) text of narrative, (4) metanarrative(s), and (5) the social network in which listener and the teller are embedded. The process of narration ties all these elements together. Within the context of hadith narration, these elements correspond to (1) the master of hadith (the muhaddith), (2) the student of hadith (talib al-hadith), (3) text of hadith (matn), (4) metanarratives of hadith (ulum al-hadith), and (5) *isnad* system, respectively. Below, I will discuss all these components and the way they are linked to each other within the context of hadith transmission network, or *Isnad* system. I will show that in this system both narrative and its holders are embedded in a stratified structure which aimed to determine whose narrative will gain more authority.

Hadith

Since I have already discussed what a hadith is, here I will shed some more light the stratification of narrative and the logic behind it. Some narratives are denied the authority others enjoyed. Ahadith are classified in accordance with authority attributed to it by the scholars as follows. This classification is not universal; one can find more refined classifications too.

1. *Sahih*: reliable, sound

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al-Baiquni, which was expanded upon by, amongst others, al-Zurqani (d. 1122) and Nawab Siddiq Hasan Khan (d. 1307). *Qawa'id al-Tahdith* of Jamal al-Din al-Qasimi (d. 1332). *Taujih al-Nazar* of Tahir al-Jaza'iri (d. 1338), a summary of al-Hakim's *Ma'rifah.*

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2. *Hasan*: good, acceptable
3. *Da'if*: weak
4. *Mawdu'*: fabricated

The stratification of narrative is consequential because Islamic theology uses only the perfectly sahih hadith (mutawatir); Islamic law uses the first two categories; some schools of law, history (seerah), and mysticism (tasawwuf) on moral lessons, use weak (Da'if) hadith as well. A legal or theological principle can only be derived from a sound (sahih) hadith—a concept variously defined. I can, therefore, confidently claim that each religious science (hadith, law, theology, mysticism, and history) developed a distinctive metanarrative about hadith for the different purposes they put it into use.

The question that needs to be asked at this moment is what is the logic behind this system of stratification. The decision about the authority of a narrative is made by scholars who critically examined their texts and chains. I shall return to this issue in greater detail shortly in the discussion of Methodology of Hadith.

Hadith and other Islamic Narrative Traditions

Hadith is a term innovated by early Muslims to denote the narratives of the Prophet in contradistinction with the Koran. Similarly, the term gained its meaning in contradistinction with other narrative genres about the Prophet, namely, the *Seerah*, the history, and the story. Below, I will briefly touch on these narrative traditions.

The Koran:

Islamic creed holds that the Koran, just like previous holy books, contains direct revelations from God to Prophet Muhammad whose sole task was to convey them to

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humanity. In the Koran, God chooses to speak in narratives as He does in the Bible and other holy books. There are striking similarities and differences between the Biblical and the Koranic stories. Furthermore a Muslim is required to believe in the Bible in its authentic form as a revelation of God as well. However, it is considered to have only partly survived to this day.

A clear and well-guarded line is drawn between the Koran and hadith. Hadith, Islamic creed holds, includes the talk of the Prophet in his human capacity. Yet, his talk is not treated as the same as any other person's talk. Nor were his deeds treated as the deeds of an ordinary person. They were believed to be the embodiment of the Koranic teachings. They complement and explain the Koran.

The Biography and Battles of the Prophet:

The Biography of the Prophet, known as *Seereah,* has been distinguished from Hadith since the first century of Islam. It is different genre limited only to the historical events that took place in the life of the Prophet. In contrast, hadith does not have such a limited focus; it is about everything about the Prophet. The strict scholars of hadith had always criticized the *Seerah* and *Maghazi* literature for being inaccurate.

The History:

History, which emphasizes placing events on the linear timeline, constitutes yet another genre about the life of the Prophet. History is not limited in its interest only to

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the life of the Prophet, rather it aims to cover everything worthy of mentioning from their perspective. Duri argues that historiography benefited greatly from hadith methodology.

The Story (Qissa) about the Prophet:

The Qissa genre represents the rather fictive narrative about the Prophet (Riffaterre 1990). Some of these narratives are based on the model of biblical stories about previous prophets. There had been always a fierce fight between scholars of hadith and storytellers, which can be seen as a fight between empirical and fictive modes of narrative.

There evolved a social network around each one of these narrative traditions analogous, perhaps not as elaborate as it is, to the hadith transmission network. Hadith transmission network partly overlaps in varying degrees with these networks.

Metanarratives of Hadith

Hadith narration remained an excessively self-critical and self-reflective activity regarding ties, identities, and networks, but not only about narrative texts, which might had been annoying to the general public. The Sciences of Hadith, which emerged gradually parallel to the formation of hadith transmission network, document the way hadith narrators examined their own network (Robson 1953). A survey of this literature will show that narrators developed a differentiated view to hadith, its narrators and types of their ties. Furthermore, they analyzed patterns in the transmission networks of hadith

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to determine the degree of reliability. This critical activity created a system of thought through which narratives, narrators and chains were brought together to create a larger structure. Hadith metanarrative gave rise to three main genres: the biographical dictionary, Methodology of Hadith, and Methodology of Law. This following brief survey derives from the body of literature to which each one gave rise.

How hadith-narrators reflected on and examined their own network and the network of others manifests itself in metanarrative. Metanarrative--with valuation as its integral part--assigns identities to narrators, narratives, their ties, and their networks. This complicated order is difficult to penetrate without considerable study and contemplation. These parts developed relationally and remain interdependent to each other. Narratives mediate ties to other identities. The intermeshing of these identities creates a metastructure of actors, narratives, and metanarratives. Employing these constructs, metanarrative ironically both warns and insures the public about the reliability of narrative. Metanarrative genres of hadith give the impression of a bloody battlefield: identities are attacked and defended quite apart from the conflict over the interpretation of the content of narrative. The outcome, however, as Silverstein argues for metalanguage (Silverstein 1994, See also Gombert), is structural coherence[21] variably achieved, perceived, and used by actors and onlookers. The historical manifestation of structural coherence is the rise of the different schools of law which made sense of hadith and its transmission network in contradictory terms.

[21] Distinct from semantic and text-bound "sense-based coherence" (Silverstein 1994: 45) needed by actors who are embedded in social structures to interact meaningfully within the context.

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Metanarrative is an emergent structural property of narrative social structure. It emerges--as reflection and medium of construction--gradually parallel to the development of narrative social structure and takes various forms based on the criteria used in the self-reflection and examination of the narrators. These criteria are derived from culture and based on broader epistemological questions.

Methodology of Hadith: Usul al-Hadith

The Sciences of Hadith provide a very interesting example of metanarrative. It has, as we will see below, a network component built in it, which modern literary theory and criticism lack.

Hadith criticism, as Ibn Khaldun summarized in the aforementioned citation, was guided by some principles scattered in the literature. Below I tried to codify these principles to make them easily accessible to the modern reader. These principles developed gradually, gained considerable acceptance in the hadith community, and constrained the narrative actions of narrators. These metastructural features combined will give us an idea about the culturally operative measures used in the Hadith literature to determine the reliability of hadith and the identity of narrators. The narrators' self-reflection focuses more on transmission structure rather than on the content. This orientation drew criticism from those who wanted more focus on texts.

1. Criterion: number of ties to the source

Rule 1: The fewer the number of ties in a chain, the more reliable the chain.

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Figure 2.5: Rule 1

---

2. Criterion: number of corroborative/parallel chains for a narrative

Rule 2: The more parallel chains a narrative has, the more reliable the narrative is.

Figure 2.6: Rule 2

---

3. Criterion: continuity of chain

Rule 3: The fewer the indirect ties, the better the chain.

The less broken, the better the chain.

The more completely recorded the ties in a chain, the more reliable the chain.

Figure 2.7: Rule 3

---

4. Criterion: narrator reputation

Rule 4: The more reputed the narrators in a chain, the more reliable the chain.

Figure 2.8: Rule 4

---

5. Criterion: type of narration\tie

Rule 5: The more adequate the methods of narration, the more reliable the chain.

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Figure 2.9: Rule 5

---

6. Criterion: strength of narrator's memory

Rule 6: The stronger the memory of the narrators, the more reliable the chain.

Figure 2.10: Rule 6

---

7. Criterion: character/morality of narrator

Rule 7: The higher the character of the narrators the more reliable the chain.

Figure 2.11: Rule 7

Based on each rule, hadith is classified into various categories. The following table summarizes the system of hadith classification based on the above mentioned seven rules.

Figure 2.12: Classification of hadith according to types of chain

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Operationalization of these concepts gave rise to a sophisticated, multidimensional, or multi-factor, evaluation system.

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Figure 2.12: Valuation

Below are two examples of hadith criticism. These examples show how the above rather abstract rules and concepts are put into play within the context.

> "Knowldge is only by learning". "Innama al-'Ilm bi al-Ta'allum."
> Al-Tabarani related it in *al-Kabir.* Abu Nuaym and al-Askari also related it from Abu al-Darda' who reported it from the Prophet with the following phrases: "Knowledge comes only through learning; Insight comes only through persistent study. Only those who search for the good will be given it. Only those who want to protect themselves will be protected. Those who cast lots (or seek an oracle from the deity), see an evil omen in (or believe that they are dispelled by) a bird that makes them give up their travel plans will not reach the high levels—and I do not say to you only in Paradise."
>
> Muhammad bin al-Hasan al-Hamadani, one of the authorities in the chain, is a liar. Yet, al-Bayhaqi related it in *al-Madkhal* on the authority of Abu al-Darda as a *mawquf* hadith. It is also reported in a narration from al-Tabarani. Similarly, al-Bayhaqi related it from Abu al-Darda with the addition, after his word "he is protected", "whoever has the following three qualities will not reach high levels—and I do not say to you only in Paradise: those who make prophesy, or cast lots, or gave up a journey because of an evil omen." Al-Askari also related it from Anas as a *marfu* hadith, and also from Muawiya as a *marfu* hadith but with the phrase of "O People! Knowledge comes only through learning; understanding comes only through persevering investigation. If God wishes good for someone gives him a comprehensive understanding in religion. Among the servants of God, only those who have knowledge really honor Him."
>
> Likewise, al-Tabarani related it in *al-Kabir* and Ibn Abi Asim in *al-Ilm* also from Muawiya. Al-Bukhari related it with expression that indicates certainty as he said in one of the chapter headings: "The Prophet, May God bless him and give him peace, said: If God wishes good about someone gives him a comprehensive understanding in religion. He also said, "Knowledge comes only through learning."
>
> Al-Daraqutni narrated it in *al-Afrad,* from [the editor could not read what is in the manuscript] and al-Khatib from Abu Hurayra on the authority of Abu al-Darda with the phrase of "Knowledge comes only through learning; Insight comes only through persistent study. Only those who search for the good will be given it. Only those who wants to protect themselves will be protected."

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Abu Nuaym also related it from Shaddad bin Aws with the phrase of "A man said: O the Messenger of God! What increases knowledge? He said: "learning."" In its chain of authorities, there is a liar. He is Umar bin Subayh.

Al-Bazzaz also related it as part of a long narrative whose chain of authorities consists of the reliable narrators on the authority of Ibn Masud as a *marfu* hadith which stated: "He used to say: Hold on to this Koran because it is the counter [or dining table] of God. Whoever, among you, can take from the counter of God must do so because the knowledge comes only through learning."

Al-Bayhaqi related in *al-Madkhal,* and al-Askari related in *al-Amthal,* both from Abu al-Ahwas, that the Prophet said: "A man is not born as a scholar. Knowledge comes only through learning."

Al-Askari also narrated from Hamid al-Tawil that al-Hasan used to say: "If you are not insightful, try to become one. If you are not a scholar, study. If one tries to imitate a group, he usually becomes one of them."

Al-Askari also narrated through a different chain of authorities on the authority of Amr al-Bajili that al-Hasan said: "Pay attention! Even if you are dressed with the dress of a scholar, the one who is dressed with the dress of insight is better than you. If you did not have insight, I would not deal with you. So do your best to gain insight, for whoever tries to become like a group eventually joins them" (al-Jarrahi II:215-216).

Here is another example of hadith critique.

"What God created first is the Pen." (*Awwalu ma khalaqa Allah al-qalam.*)

Ahmad narrated it. Tirmidhi narrated and acknowledged its authenticity on the authority of Ubada bin al-Samit as a *marfu* hadith with the following addition: "And He said to it: "write." The Pen said: "O my Lord! What should I write?" He said: "write the measures of everything."

Ibn Hajar said in *al-Fatawa al-Hadithiyya* " This hadith reached to us and authentically reached to us through several chains."

In another narration, "God created the Throne and prevailed on it, then, He created the Pen and ordered it to draw with his permission. The Pen said: "O my Lord! What should I draw? He said: "What I am going to create and what is going to be in my Creation from rain, or plants, or the living, or the different ways of life, or the food, or the time of death." And the Pen drew what is going to be until the end of the world." Its men [i.e. narrators] are reliable except for al-Dhahhak bin Muzahim. Ibn Hibban honored him and said he did not hear from Ibn Abbas, yet, a large group of scholars considered him weak.

It reached to us on the authority of Ibn Abbas, may God bless both of them, as a *marfu* hadith up to him, that "The first thing God created is the Pen. He ordered it to write everything." Its men are reliable.

In another narration for Ibn al-Asakir as a *marfu* hadith that "The first thing God created is the Pen, then, He created "nun" that is the inkpot. Afterwards, He told it "write what will happen or what will exist ...—until the end of the hadith.

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> Ibn Jarir also narrated that the Prophet, May God bless him and give him peace, said: "(By the Inkpot! By the Pen and what they inscribe!) [Koran LXVIII:1-2] " He said a tablet from light and a pen from light which inscribes what will happen until the doomsday." The hadith ended here.
>
> In *al-Nujum,* and by al-Tirmidhi, on the authority of Abu Hurayra, it is narrated that "the first thing God created is the Pen. Afterwards, He created the *nun* which is the inkpot and said to it: "write." It said: "what should I write?" He said: "write what happened and what will happen until the doomsday. This is the word of God "By the inkpot! By the Pen and what they inscribe!" [Koran LXVIII:1-2]. After that, he sealed the mouth of the Pen, as a result of which it did not speak and it will not speak until the doomsday. Then, God created the intellect, and said, "by my power and glory, I will perfect you in those I love, and I will leave you imperfect in those I anger."
>
> Al-Laqqani said in his *Jawhara,* "the Pen is a being from light of God. He created it and ordered it to inscribe what happened and what will happen until the Last Day." He stayed away from defining its real nature. In some reports the first thing God created is the Pen and he ordered it to inscribe everything. In one narration, the first thing the Pen wrote is "I am a repenter. I repent on behalf of those who repent." The hadith ended (al-Jarrahi II: 263-264).

These metanarrative orientations are important for two reasons. First, they shed light on the logic of strategical investment on ties and thus social power in the hadith transmission network. Second, they explain how their publics perceived hadith and narrators, especially by students of hadith and jurists. Below, I will use examples from two other metanarrative genres, the biographical dictionary and the methodology of jurisprudence, to illustrate these points which demonstrate how metanarrative actually works.

Methodology of Law: Usul al-Fiqh

Another genre, which illustrates the play of metanarrative, is the Methodology of Islamic Law, variably defined by different schools of law. Operating in the context of the assumptions already described and following the guidelines provided by the

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Methodology of Law, jurists critically examined the structure of the transmission network and the text of the hadith before they granted a hadith the status of legal evidence (Coulson 36-73; Schacht 1965: 28-36; Kamali 1991: 44-85).

I have already mentioned how jurists developed a distinctive metanarrative on hadith. Furthermore, each school of law has its own metanarrative expressed in their Methodology of Law. In this connection, different metanarratives developed and a line was drawn between the "People of Hadith" and the "People of Opinion"--conflicts that are observable both among Sunnis and Shiites. The People of Hadith claimed to be more faithful to the legacy of the Prophet and accused the People of Opinion of limiting the role of hadith in Islamic law. Both sides developed distinct methodologies of hadith and law, on which, because of further differentiation, numerous schools of Islamic law were founded. Only four of these schools survived the test of time: Hanafi, Shafii, Maliki, Hanbali[22].

Figure 2.13: *Isnad* and *Hukm* about Here

The debates about the hadith on marriage without permission of one's guardian illustrate the process of extracting rulings from hadith. Narrative has it that the Prophet said, "the marriage contract [for a minor girl] without the permission of a guardian is invalid" (Darimi: Nikah 11). Among the four major Sunni schools of Islamic law (the

[22] These four schools which outlived several others were named after their founders: Abu Hanifa (AH 81-150/ CE 700-767, Iraq), Malik (AH 90-179/ CE 710-795, Medina), Shafii (AH 150-204/CE 767-820, Egypt), and Ahmad, son of Hanbal (AH 164-241/CE 780-855, Baghdad). For an early statement in English translation by Shafii, see, *al-Shafii's Risala: Treatise on the Foundations of Islamic Jurisprudence.*

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Shiites also have a different understanding of hadith), the Hanafi jurists did not grant this hadith the status of legal evidence. They argued that this hadith was an "*ahad*" hadith (lit. "lone," or "unique"), a hadith with insufficient parallel chains. Also, they argued, one of the narrators, Aisha, wife of the Prophet, went against her own narrative by allowing the marriage of her niece while her father was away for a business trip. This also showed that she did not think this was a binding legal rule[23].

Figure 2.14: Hadith in Islamic Reasoning

Jurists almost unanimously view the *isnad* as a source of conjectural knowledge (dhann) with varying degrees of certainty regarding the authenticity and denotation of the hadith. Theirs is a task of dealing with a dual uncertainty: (i) about the source of knowledge, which depends on the analysis of the *isnad*, and (ii) the explicitness of denotation, which depends on the analysis of the text. The outcome or legal decision (*ijtihad*) is also conjectural and binding only on those who accept it. Thus, as Berman documented for Western legal tradition[24], Islamic legal tradition also developed out of narrative, primarily the Koran, and supplementary to it, the hadith. In primary and secondary oral cultures, narrative remained the best way to store legal knowledge (Ong 1982: 139-155) for easy dissemination, memorization and recall. About the tenth

[23] For this debate in the Methodology of Law, see, Sa'ban (1990: 76). For further details on the role of network structure on legal reasoning, see Unal (1994), Kockuzu (1988), Polat (1985), and al-'Ala'i (AH 694-761).

[24] Berman's work itself is a legal metanarrative. "This book tells the following story: that once there was a civilization called "Western"; that it developed distinctive "legal" institutions, values, and concepts; that these Western legal institutions, values, and concepts were *consciously transmitted from generation to generation over centuries, and thus came to constitute a "tradition"* (italics are mine) (Berman 1983: 1).

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century, in Iceland, among oral traditions, law occupied a distinct place: "The second oral tradition was the law, one third of which was recited from memory at the Parliament on each of three years by an elected ... lawspeaker" (Scholes and Kellog 1966: 44, See also Yates 1966, Eickelman 1992).

Commentaries on Hadith Compilations

Every well-known hadith compilation has at least several commentaries (*sharh* pl. *shuruh*) on it. This literature constitutes an important part of hadith studies and helps the public in the interpretation of hadith texts as well as the chains of hadith. Commentaries analyze the chain and the text of the hadith. For instance, al-Ayni's twenty huge volumes commentary on Bukhari's seven volume compilation, systematically discusses (1) chapter headings, (2) the connection between the hadith and the chapter headings, (3) analysis of the chain of authorities, (4) other sources where the same narration is related, (5) various versions of the narrative, (6) explanation of the vocabulary, (7) grammatical analysis (al-'Irab), (8) literary arts, (9) legal analysis, (10) debates rising around the narrative.

Biographical Dictionaries

Biographical dictionaries (*tabaqat* and *tarikh*) constitute a metanarative genre on hadith with a particular focus on the network connections between narrators. In Islamic scholarship, there had developed biographical dictionary literature in all fields of

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scholarship from law to poetry. None of these is as rich as the one on the scholars of hadith.

Among hundreds of volumes the most recent ones include books about layers of transmitters by distinguished authorities such as al-Dhahabi's (d. 1347 AD) *Dictionary of Elite Transmitters,* which records 21 layers of transmitters with 1176 transmitters, al-Suyuti's (d.1505 AD) *Layers of Elite Transmitters* which records 24 layers with 1188 transmitters.

Biographical dictionary literature, as I will discuss in the following section, presents a rich variety in scope. For instance, some biographical dictionaries provide information only about the transmitters of a particular book or a city. For example, the narrators of al-Bukhari's *hadith* collection, *The Reliable Hadith Collection of Bukhari* became subject for a few biographical studies. In Bukhari's collection, there are 7275 chains and around 4000 texts with a total number of 1525 transmitters (Ayni). The most renown among these is the one by the famous Kalabazi (363-398 AH) who compiled a two volumes biographical dictionary on the lives and network connections of the narrators who appeared in Bukhari's work, titled as *The Men of Bukhari's Authentic Book* (*Rijal Sahih al-Bukhari*[25]).

Biographical dictionaries about hadith transmitters, the primary source with which to reconstruct the network of transmitters, provide biographical information about each figure which may include the name of the person, father and grandfathers, birth date and place, death date and place, teachers, students, travels, scholarly works, and the comments

[25] The Complete title is as follows: al-Hidaya wa al-Irshad fi Marifah Ahl al-Thiqah wa al-Sadad allazina Akhraja lahum al-Bukhari fir Jamiih li al-Imam Abi Nasr Ahmad bin Muhammad b. Al-Husayn al-Bukhari al-Kalabazi (363-398 AH).

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of other authorities about him or her. Following is a brief example of a transmitter from the fifth layer whose name was Bakr who lived between 102-174 AH.

> 215. Bakr son of Mudhirr son of Muhammad son of Hakim son of Sulaiman, the father of Muhammad, the Egyptian. He narrated from Muhammad son of Ajlan, and Yazid son of the father of Habib. Narrating from him were the son of Wahb, Qutaiba, and al-Walid son of Muslim. He was reliable, honest and pious. He was born in 102 and died in 174 on the day of *arafa,* a day before the festival of *eid* (Suyuti 108).

Dhahabi's *History of Islam* (*Tarikh al-Islam*), with only 38 volumes that could yet be published, contains around forty thousand biographies of important figures in Islamic history from the time of Prophet Muhammad until his time. This magnificent study is the mother of several other small and more specialized biographical dictionaries, two of which are very well-known among specialists in their field: *Biographical Dictionary of Elite Hadith Narrators* (*Tadhkirah al-Huffaz*), and *Biographical Dictionary of Elite Reciters of the Koran, etc.*

The following record is taken from Dhahabi's biographical dictionary of prominent narrators, who were known as *hafiz*. The way the narrator strategically built his network as a student and the criteria by which the narrator is judged are striking. I will add relevant points to the text references to the above mentioned metanarrative criteria. I will also add "H" to indicate those who are hafiz in the network.

> 178. 25/5 [meaning 25th narrator from layer 5] A ["A" after the number of the narrators is used by Dhahabi to indicate that the narratives through his chain were accepted by the authors of the "six most reliable collections"] **Abdurrahman son of Yazid son of Jabir.** The outstanding scholar, jurist, and prominent narrator of hadith [Cr. 4], father of Utaybah of Azd, from Damascus and Daran. He took narrative from the father of Salam Mamtur,

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> [H] Makhul, the father of al-Ash'ath of Sana, Abdullah son of Amir of Yahsin, and [H] Zuhri as well as from a great number of other narrators [Cr. 2]. He traveled to Mansur when he wanted to take narrative from him. He was well-respected and was from the outstanding scholars of Damascus [Cr. 4]. The son of Ma'in, and the father of Hatim confirmed his reliability [Cr. 7]. The best word of his is what Walid son of Muslim heard from him, "do not write down knowledge [narrative] from anyone except from those who truly know the quest for knowledge" [Cr. 5, 6]. He met some of the elderly Companions, and I have not come across any narrative he reported from the young Companions [Cr. 1]. During the rule of Walid, son of Abdulmalik, he underwent oppression along with his father [Cr. 7]. His narrative is accepted by the Six [most reliable] Books. Son of Mushir said, "I saw him." He passed away in 153 [after hijrah]. [H] Son of Mubarak, [H] Walid son of Muslim, [H] Muhammad son of Shu'ayb son of Shabur, Umar son of Abdulwahid, and [H] Husayn of Ja'f as well as many other narrators related from him [Cr. 2]. May God bless him.

This biographical narrative tells that Abdurrahman was a figure of high repute with several renown teachers and students[26]. Having met with some of the Companions, disciples of the Prophet, increased his status, but since he did not report narrative from them his social ties are not definitive of his position. Thus, he is placed in the subsequent generation, layer 5, for the position in the network is determined only by narrative-ties but not by other kinds of social ties. He also got good reviews from the critics. Hence, there is not much controversy about his reliability and identity as a hafiz[27].

---

[26] We see that not everyone in the network of Abdurrahman was a hafiz. The way to figure this out is to check for all figures, whether they are coded in biographical dictionaries as hafiz or not. It should also be noted that not all teachers and students are mentioned in the biographical entry. In order to avoid repetition, Dhahabi reports ties either in the entry of teachers or in the entry of students. Thus, without a complete survey of the relevant layers in the book, one can never be sure how many students and teachers a hafiz had. Such a survey shows that Abdurrahman had another hafiz-teacher, al-Qasim al-Mukhaymira from layer 4 (no: 107), and a hafiz-student from layer 7, Abdullah b. Yusuf (no: 408). For the concept of hafiz, which is loosely translated here as "prominent narrator," see, Dhahabi (1991: 67-68).

[27] While Abdurrahman belonged to layer 5, all his teachers came from layer 4. Among his students 3 of them came from layer 6, two of them from layer 7. He avoided having ties to narrators from his own layer--an indication of strategical investment in ties and intergenerational brokerage.

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Narrator: Muhaddith

The above account helps us visualize who was a hadith narrator, in Arabic *Muhaddith,* and what it took for a scholar to gain authority to get his narratives accepted among them. The titles mentioned in the beginning of the record, al-Hafiz, *al-Imam, al-Allamah, al-Hujjah*, are standard titles used in the community of scholars to indicate one's position in the social strata. These titles were given with the consensus of the community but not by a formal institution of the state. So they are different from the titles given by the Church or the diplomas and the titles given by the universities. Acknowledging one's title and position does not make him/her immune from criticism.

The group is differentiated from the general community of scholars with the name, narrator, *muhaddith,* which serves as a social identity, gained through rituals of obtaining diplomas, ijazah, from masters. Yet, within the group the internal competition leads to social stratification which eventually determines whose narrative will gain acceptance and survive. The stratification of narrative that we discussed above must be analyzed in conjunction with the stratification of its holders, that is narrators of hadith. Here are the strata of hadith scholars:

1. *Talib*: student, apprentice
2. *Musnid*: the one who can report a hadith with its chain of authorities
3. *Muhaddith*: Scholar of hadith
4. Hafiz: Distinguished scholar of hadith
5. *Imam*: the Leading scholar of hadith
6. *Hujjah*: Scholar whose word is accepted as evidence
7. *Shaykh al-Islam*: the leader of all Muslims in knowledge

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The lines that distinguish these strata are fuzzy. There has been engaging debate among the scholars for centuries about the definition of each title. Since everyone does not equally value the merit of a scholar, usually, a prominent scholar might be classified differently by his or her colleagues.

The rules for the critique of scholars is the subject matter of a branch of the Sciences of Hadith, *Jarh wa Ta'dil,* in English "Wounding and Honoring" (al-Subki 1984). The vast literature on the subject is beyond our scope here because in this study we limited ourselves only to the group of huffaz. The aforementioned rules 6 and 7 also shed light on the ranks of scholars based on their scholarly achievement and ethics.

It must also be noted that most of the prominent hadith scholars achieved prominence in other disciplines as well. Hadith as a subject matter is intimately related to law, history, and theology. Consequently, it was not difficult for a prominent scholar of hadith to become part of these other disciplines as well. From a social network analysis perspective, polyhistors switched between social networks that required them to oscillate between different genres. They established links between different network domains. One outcome of this multidisciplinary affiliation was the overlap in the social network of scholars from different fields.

Processes in the Network

Who becomes prominent in the narrative social structure depends on who plays the most crucial role in the flow of the most sought-after narrative. Those who have access to the valuable narrative and can make it available to others, because of their

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structural positions, gain prominence. They accumulate the most reliable narratives from the earliest generations through several corroborative chains with reputed narrators. Consequently, other central members of the network and students seek after them. Not only immediate relations but also remote relations in the chain affect prominence: the value of a narrative chain is equal to its weakest link (Kamali 1989: 81). The *isnad* system thus reflects the properties of a clientelist social institution woven together through personal ties between unequals from different generations (White 1992: 150-155; Poggi 1983; Eisenstadt and Lamarchard 1981).

In measuring the prominence of a narrator in the network, we should take into consideration the actor's past and future ties together--except for eyewitness narrators who cannot have past ties. In this regard, the hadith transmission network provides us with some insights on the teacher-student networks that can be contrasted with modern academia (Berkey 1992, Zuckerman 1977). If the patron is not careful in choosing students who later become patrons, the narrative passing through their chain might lose its value when the unreliable links are discovered and displayed later by their competitors. Hence, narrators who are very prominent in their lifetimes might lose their positions later, or the opposite might happen, contingent upon future ties and conflicts about identities.

There are, then, four types of prominence: (1) in one's own time (in-layer prominence), (2) over-all prominence. Since narrators are students (clients/receivers) before they become teachers (patrons/givers), another distinction in the analysis of

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prominence becomes possible: (3) prominence as student, (4) prominence as teacher. The modalities of these concepts are addressed in the methodological discussion[28].

The flow of narrative takes various directions depending on the temporal position of the giver and receiver: upward, downward, and horizontal. If a narrative relation takes place between two narrators from the same generation, this is an exchange between two actors from the same stratum, and thus, a horizontal one. If the teller is from an earlier generation and the listener from a later generation, narrative is flowing downward inter-generationally. If it is the opposite, that is, the teller is from a later generation but the listener is from an earlier generation, then, the narrative is flowing upward intergenerationally.

Eyewitness narrators enjoy the highest status, and therefore do not need to seek after others. Consequently, there is no upward flow to or from their layer. The Companions took narrative only from Companions (14 ties) but not from others. Here we observe how eyewitness narrative empowers those who hold it. The degree of connectedness, or the volume of the flow of narrative between generations creates a horizontal "S" shape pattern, which I call "wave". As the graphs in the following chapters will illustrate, a new generation/layer emerges as students of an earlier generation. The degree of connectedness to earlier generations as their students increases as the distance between generations decreases. Then comes the degree of connectedness

[28] Sa'd, for instance, was the most prominent teacher in the first layer with 3 students from other Companions. Ibn Abbas, however, became the most prominent teacher later when we look at over-all prominence because he had 52 students from subsequent layers. Anas was the most prominent student in the first layer; in addition to his tie to the Prophet, he had 5 other Companions as his teachers and competed with Abu Hurayra who had 3 teachers. However, his being the most prominent student did not make him the most prominent teacher. He had only 15 students from the Successors, a relatively small number compared to the number of the students of Ibn Abbas, 52. These numbers do not include non-prominent,

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with the same layer: in this conjecture narrators can undertake the role of teacher or student, if there is any intragenerational exchange at all (the number of in-layer ties for layer 2 is only 5, for layer 3 is 1, for layer 4 is 21). Following this, they gradually begin undertaking the role of teacher to subsequent layers. The degree of connectedness to younger generations gradually increases and then decreases until it completely wanes as the time-distance grows.

Prominent narrators from subsequent layers were eager to have access to eyewitness narratives by establishing ties to the Companions because their layer-fellows could provide them only with reported narrative--a crucial change in the mode of narration that dramatically altered the social value of narrative (157 ties from the second and 95 ties from the third layer to the first layer as opposed to 5 and 31 ties to their own colleagues, respectively). After the demise of the Companions, they became the most sought-after narrators by younger students. This pattern remains the same throughout the hadith transmission network: Prominent narrators have considerably fewer ties to their own colleagues compared to their ties to earlier and later layers. They played the role of brokers between earlier and later generations by strategically investing in teachers and students from other, especially non-adjacent, layers. The same pattern is observable throughout all generations.

Patron-narrators and client-narrators came from generationally unequal positions thereby creating a historical example of clientelism. The exchange, as Makdisi demonstrated concerning the institution of the diploma obtained from a teacher but not from a school, is interpersonal and between unequals (Makdisi 1981; Graham 1993). The

---

i.e. non-*hafiz*, students.

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concept of diploma from a school as a corporate body is foreign to traditional Islam. "Islamic education," writes Makdisi, "like Islamic law, is basically individualistic, personalist" (1981: 271)[29].

Age Structure of Learning and Fortuitous Aspect

There is a fortuitous aspect to the process of learning and stratification, which manifests itself in two ways: choice of the most prominent and the oldest teachers at a young age and longevity after maturity. Thus the fortuitous aspect characterizes the beginning (as a student) and the final (as a teacher) stages of a prominent scholar's career.

Hadith education must begin at a young age for the chain of authorities to be shorter than one's colleagues because one's chances later in life as a teacher will depend on how short his chain of authorities is. Bulliet observes that "the sample indicates that typical students had begun their education by the time they reached the age range 4.8-10.2" (Bulliet 1983: 109). Yet, a pupil cannot plan his education because he is too young and inexperienced to do that. If he became prominent later in his life because he had prominent teachers in his network when he was very young, his parents, or other accidents, must have guided him to the right teachers as a child without his own control and planning. Even if they had made the decisions about their own education at a young age, they can hardly be expected to know all the consequences involved in choosing a

[29] "Islamic law recognizes the physical person alone as endowed with legal personality" (Makdisi 1981: 224) rather than corporate actors. Among prerequisites for a narrator, Ibn Hajar wrote, was "taking knowledge from the mouths of the individuals but not from pages" (quoted in Dhahabi 1991: 68). "When he [teacher] granted the license to the candidate he did so in his own name, acting as an individual, not as part of a group of master-juristconsults acting as a faculty, for there was no faculty" (Makdisi 1981: 274), even though they might be carrying on their activities in a university or college, known as madrasa.

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particular mentor. Rational planning in education by a student can begin only after a certain age (Merton 1973).

The fortuitous aspect becomes even clearer when we look at the longevity of scholars. A hafiz died on average at the age of 79.82. This observation derives from reports, primarily by Dhahabi, about a population that consists of 1177 scholars over 22 generations[30]. (The sources I used report birth dates for 751 figures, death dates for 752 figures, and longevity for 1173 figures. It is evident that sources are less careful about reporting birth and death dates than longevity.) As Table 2.1 shows, these figures about average longevity vary for each layer.

Table 2.1: Age Structure of Learning

A scholar of hadith has to outlive his peers—over which he has no control--for his chain of authorities to be comparatively shorter to attract students. If the narrative string of a scholar is longer than the string of other existing teachers, students will not seek him after. Furthermore, teaching hadith to students in the existence of someone with shorter chains would not be considered ethical in the hadith culture (See Chapter 5 below) because it does not serve best to the interest of students and might be seen as gulling the

[30] This figure is close to the figure Bulliet computed earlier based on a smaller sample from Nishapur. "In the 47 ascertainable cases, the average age at death was 84.3 years with a standard deviation of 8.9" (Bulliet 1983: 111).

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naïve students. Bulliets observation also confirms that scholars had to wait a few decades after they completed their education before they can commence teaching hadith.

> If the typical teacher died between 75 and 93 at the end of a teaching career of 22 years, then 53-71 should be the age range for the commencement of a career in *hadith* transmission. Taking into account the high standard deviation associated with the estimate of 22 years, a plausible conclusion is that while it was not out of the question for a person to begin transmitting *hadith* when he was as young as forty, it was more likely that he would be over fifty if not over sixty years of old (Bulliet 1983: 112).

Modes of Narrative and Network

The tension and diachronic switching (White 1995) between various modes of narrative affects narrative social structure. The switching from eyewitness to reported narrative is a crucial change in narrative social structure. Eyewitness narrative empowers those who have and can provide it. In the narrative chain, distance from the eyewitness narrative means decrease in the social value of narrative and thus in the prestige of its holders. Most of the activity in hadith transmission network (measured by the degree of connectedness between layers) takes place between non-adjacent layers, which means less activity between adjacent layers, and even lesser activity within the same layer, because of the attempts of narrators to get as close as possible to the stratum of eyewitness narrators by reducing network distance[31] (recall Criteria 1 above).

The impact of changing literary structures on social structure is also observable in the switching from eyewitness narrative to reported narrative which is demonstrated in

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the lexica: the lexicon of the Companions in reporting narrative is different from the lexicon of later layers. I will analyze the lexica and structures used by eyewitness narrators and by those of later generations who merely reported speech (Lucy 1994; Hickman 1994) to explore how switching language, from participative to reportive mode, paralleled the shifting network domains from the Companions to the Successors[32](White 1995; Scholes and Kellog 256-265). Structures such as "in the presence of the Prophet I did...," "while we were sitting...," "I saw," "I asked," "I heard" were replaced, as the Companions disappeared, by structures such as "'A' told us that," "from 'A'," "I heard 'A' telling". The first set of words are participatory and emphatic: they indicate participation in the event either by actually partaking in it or as an onlooker (Morson and Emerson 127-130). (Note how narrators report the speech from different layers in the above hadith). The second set of structures does not indicate participation but indicates reporting speech. Thus, none of the structures used by later narrators to denote some eight modes of transmission[33] (Siddiqi 1993: 86) (see valuation table, rule no 5) applies to the Companions.

One of the explicit impacts of switching from oral to written mode (Abbott 1967) was the decrease in the number of narrators who memorized a substantial amount of

---

[31] For instance, from layer 4 there are 21 ties to layer 4, 130 ties to layer 3, 115 ties to layer 2, while from layer 5 there are 59 ties to layer 5, 277 ties to layer 4, and 109 ties to layer 3. These numbers indicate the ties to other prominent narrators alone.

[32] Interestingly though, even when the written mode gained upper hand, the lexica of narrators remained one of oral culture owing to the fact that in the transmission of manuscript dictation or reading was usually involved. Although there was a text involved in the transmission, narrators still said, when they reported the transmission, "I was told by 'A'," which led Sezgin, a philologist of Arabic, to assume, quite naturally, that the transmission had always been oral until he discovered that the protocol of oral hadith transmission and reporting speech maintained its sway even in the transmission of manuscripts (Sezgin).

[33] Dhahabi provides an extended list of these utterances (alfaz al-ada') corresponding to the various modes of transmission between layers following the Companions, apparently without noticing the striking distinction between utterances used by eyewitness narrators and layer generations (Dhahabi 1991: 53-55).

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narrative (See Graph 1). We can conclude from the detailed account provided by Ong, and Scholes and Kellog that in the beginning pure oral tradition, hence memorizing, was valued more than written tradition. This led an increasing number of narrators to memorize narratives. However, later, certain contextual changes such as institutionalization of education, which contributed to the spread of literacy, and canonization of certain texts, considerably helped the written narration triumph over the oral narration. In the beginning literacy had been an aid to orality; later orality became an aid to literacy.

Network Time, Periodization and Space

This study requires me to switch continuously between synchronic and diachronic modes of structural analysis (Saussure, Cesare 1976; White 1993; Luhman 1982: 285). The structure under investigation here has features that are not time-sensitive. However, these features flesh themselves out in a particular timespace. Nontemporal tensions resolve at certain points in history in favor of one side or another--the end of eyewitness narrative, the triumph of the written over the oral mode--which can be used as markers to periodize the history of hadith transmission network in sequential time (Clemens 1995). Unlike traditional historians of hadith such as Dhahabi and Suyuti who listed subsequent generations of narrators one after another, I will be sensitive to changing modes of narrative and their impact on the whole structure in my periodization of the history of hadith transmission network.

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Multiple times play a crucial structural role when it comes to analyzing generations in a network through time (see above Table 2.4, and Figure 2.4). In a matrix constructed from data about a network through time like the one we have, activity occurs around the diagonal because below and above the diagonal, relations are impossible due to time constraints: generations either demised or were yet to be born. Consequently, each cohort or layer has a period in which it is active and can have ties to others. This requires a different way of periodization and dissection of network for each analysis based on the "temporal possibility of relations," which will be discussed later.

This study will also require me to continuously switch between physical and social space, not only because periodization is linked to the changing geography of hadith, but also to see what role space plays in the flow of narrative (White 1992: 6-8). This approach is helpful in observing how centers of narrative shifted over time from Mecca (where it originated) to Medina to Damascus and to Basra. The network dates back to CE 610, the beginning of Muhammad's Prophethood, and continues until today. 1505 is the death date of al-Suyuti, the polyhistor and author of a famous biographical dictionary of narrators, which also coincides with the stabilization of the thinning size of the network: it was neither to completely wane nor to regain its original expansive form again.

Conclusion

Above, I tried to shed light on the history and system of hadith transmission network. I examined both aspects from the perspective of interaction between narrative and social network. History of the network shows that the change in the size of the

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network can be attributed to the changing mode of narration from predominantly oral to predominantly written. The system of *isnad* shows that both the narrative and the narrators are stratified in a pyramid like structure. Narrators reflexively questioned their relations and asked how reliable they were. Rather than simply classifying them on a binary scale as reliable and unreliable, they created a formal spectrum where each scholar attempted to determine the place of individual narratives on a wide spectrum based on the *degree of reliability* each narrative had according to his criteria. The question this system served to answer was whose narrative will gain power to survive in the competition for authority. But how? The remainder of this study will attempt to provide an answer to this question.

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Figure 2.1: Layers of Prominent Hadith Scholars, 610-1505

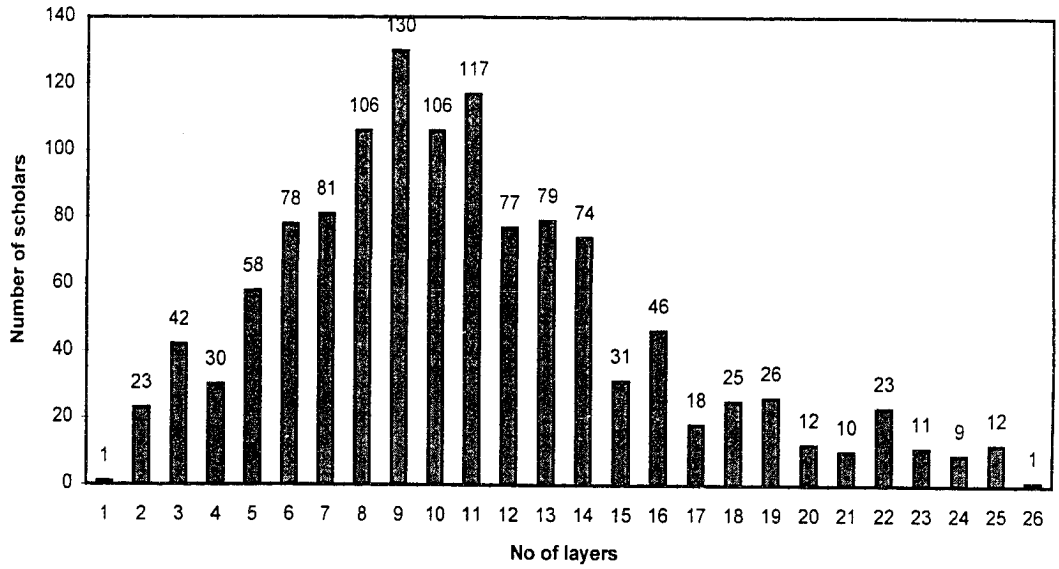

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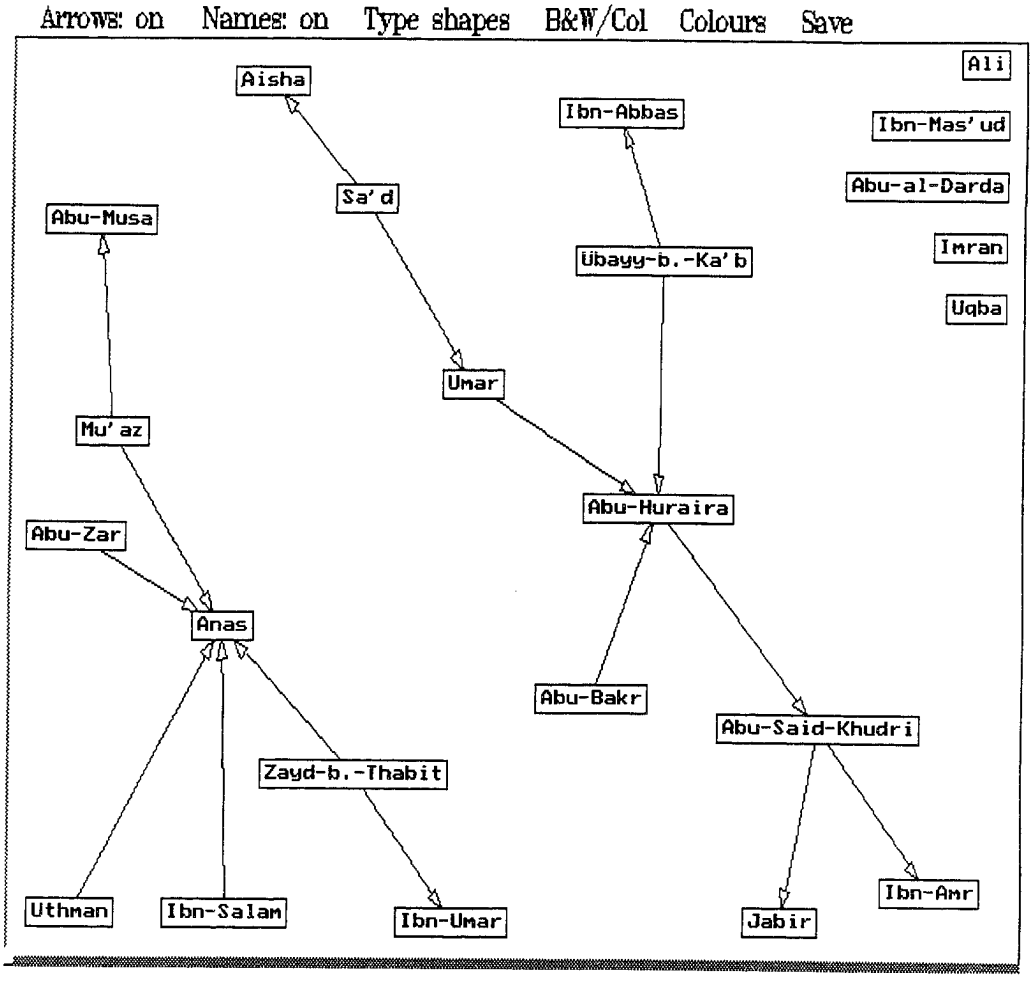
Figure 2.2: Narrative Ties Among the Companions



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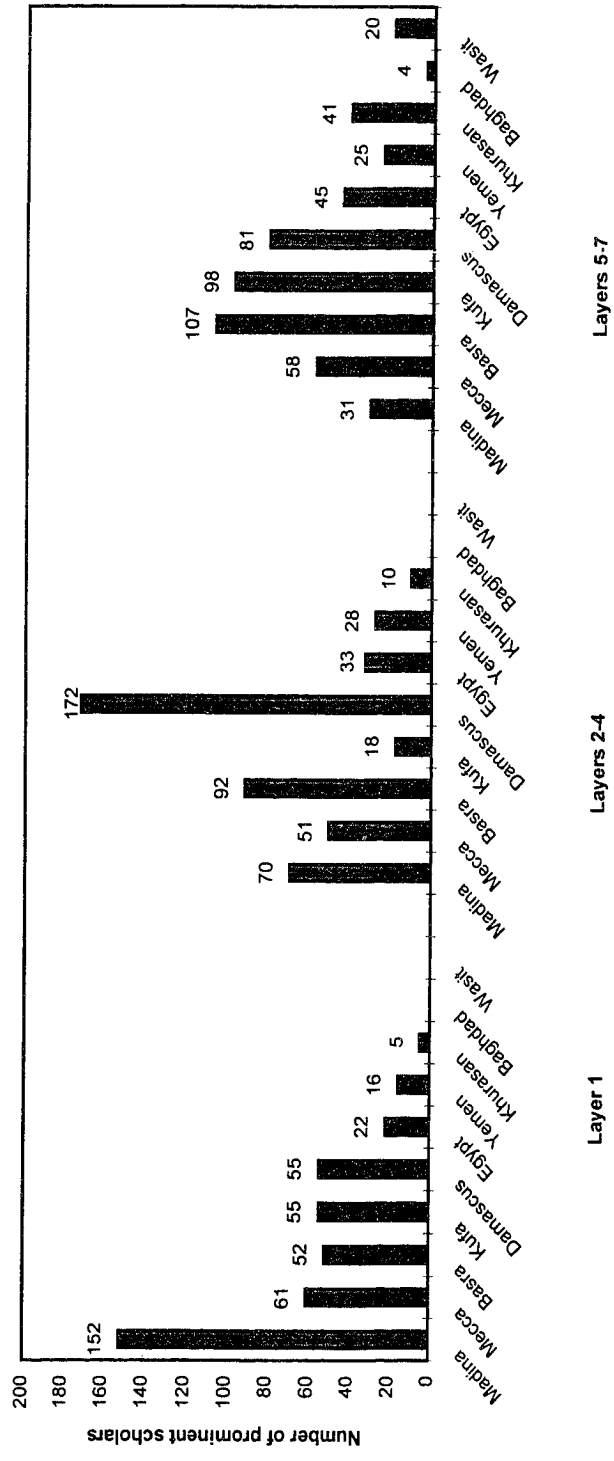

Figure 2.3: Shifting centers of hadith transmission network through time

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Table 2.1: Age Structure of Learning

Layer No	Longevity of the layer in Years (=Latest Dth – Earliest Brth)	Date of the Earliest Death	Date of the Latest Death	Date of the Earliest Birth	Date of the Latest Birth	Minimum Longevity in a Layer	Maximum Longevity in a Layer	Average Longevity in a Layer	SUM Of Longevity For All Scholars Reported	Count of Reported Longevity in a Layer	Count of Reported Birth Dates in a Layer	Count of Reported Death Dates in a Layer
1	63	11	11	-52	-52	63	63	63	63	1	1	1
2	140	13	90	-50	-3	38	100	73	1245	17	17	23
3	177	32	105	-72	22	65	131	101	1513	15	15	42
4	103	90	117	14	52	40	101	73	1174	16	17	29
5	118	100	151	33	89	36	103	76	2200	29	29	58
6	110	144	180	70	107	54	86	73	2278	31	31	78
7	111	174	206	95	129	60	98	79	4197	53	51	81
8	124	191	230	106	150	54	100	82	5818	71	71	106
9	125	213	264	139	174	50	100	81	6942	86	86	129
10	122	239	292	170	204	49	102	81	5279	65	65	105
11	138	264	318	180	240	55	123	84	6081	72	72	116
12	130	305	348	218	271	45	99	82	4082	50	52	77
13	138	304	388	250	306	46	100	83	3738	45	45	79
14	150	360	441	291	363	47	94	76	3422	45	45	74
15	125	427	486	361	409	56	95	80	1840	23	23	31
16	136	468	540	404	467	42	89	70	2743	39	39	46
17	118	542	581	463	506	56	101	76	1218	16	16	18
18	125	575	619	494	548	36	87	70	1680	24	24	25
19	116	611	662	546	584	47	93	70	1812	26	26	26
20	100	630	680	580	605	37	83	63	695	11	11	12
21	116	667	708	592	631	45	92	73	728	10	10	10
22	118	672	742	624	661	26	88	66	396	6	6	7
SUM	2703					1047	2128	1676.23	59144	751	752	1173
AVERAGE	122.9					49.86	101.33	79.82	2816.38	35.76	35.81	55.86

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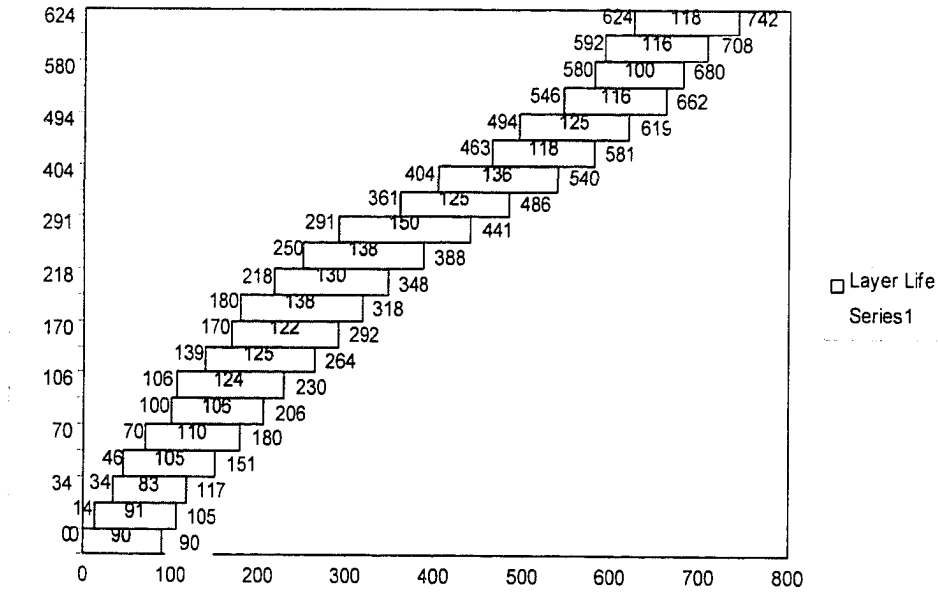
Figure 2.4: Longevity of Layers*, **



*The first layer indicates the beginning, the second the duration, and the latter the end of dates.
**The dates are according to Hijra calendar, beginning with 622 CE.

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Figure 2.5:
TYPES OF CHAINS

RULE NUMBER 1:

THE LESSER THE NUMBER OF TIES IN A CHAIN THE BETTER THE CHAIN IS

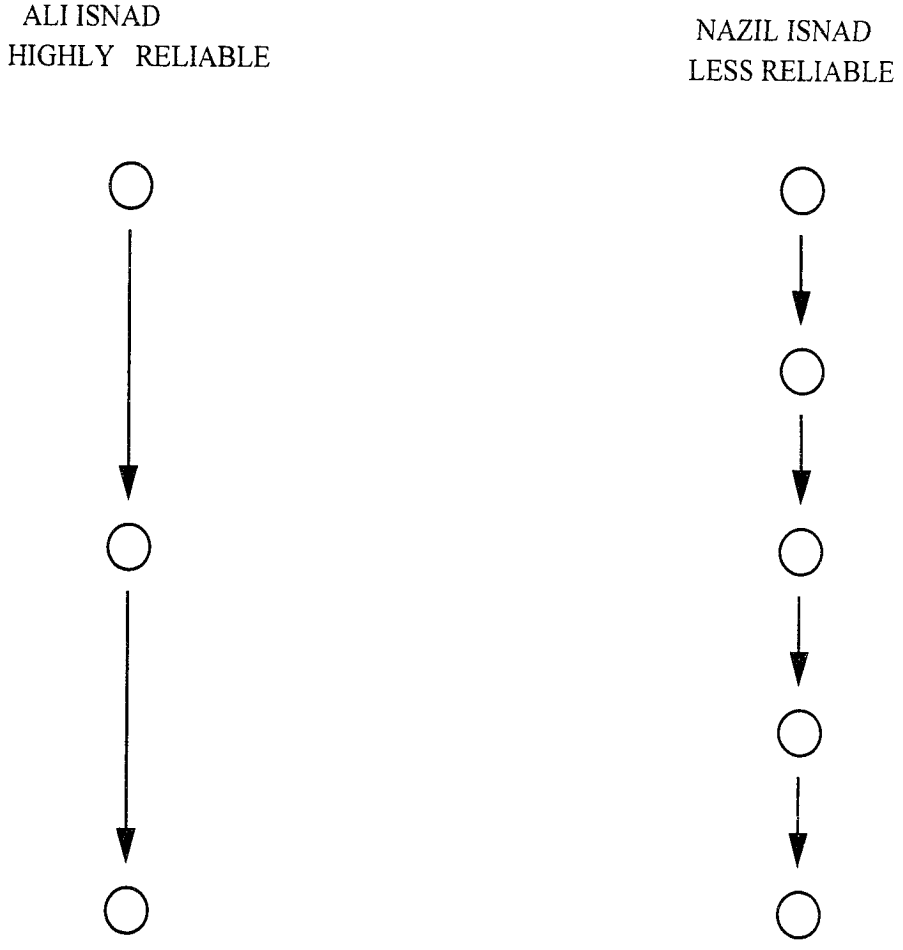

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Figure 2.6:
TYPES OF CHAINS

RULE NUMBER 2:

THE MORE CHAINS A HADITH HAS THE BETTER THE HADITH IS

MUTEWATIR
CHAINS: MORE THAN 7
HIGHLY RELIABLE

MESHUR
CHAINS: MORE THAN 4
VERY RELIABLE

KHABAR WAHID
ONLY ONE CHAIN
LESS RELIABLE

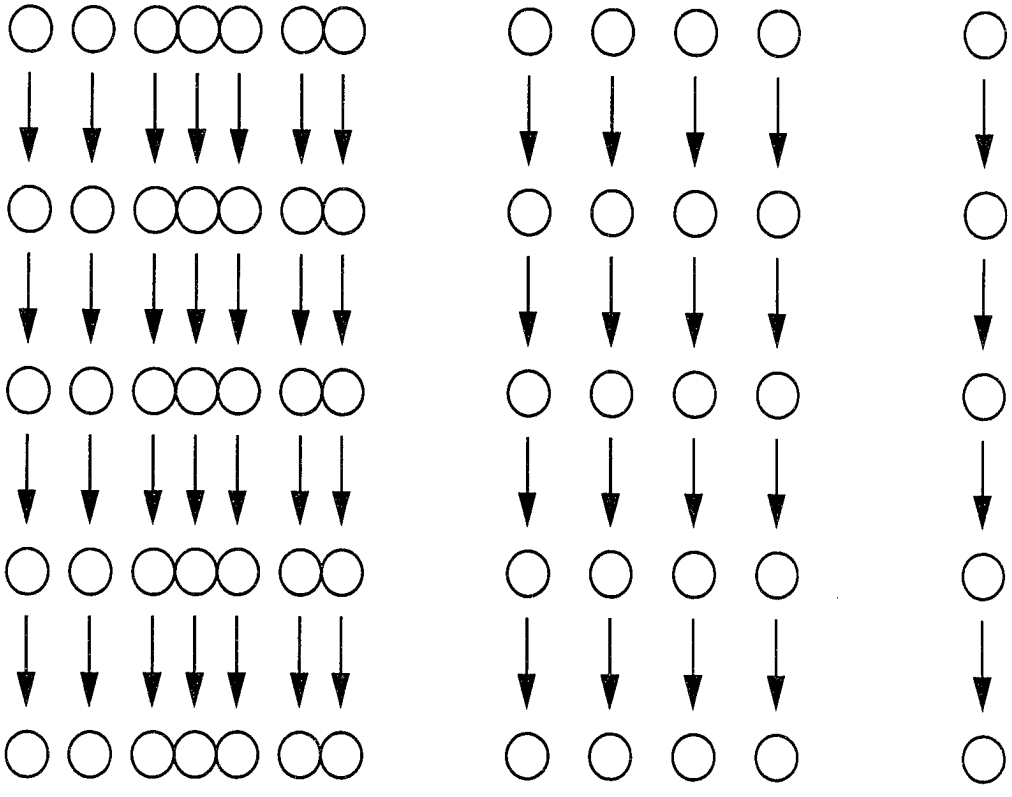

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Figure 2.7

TYPES OF CHAINS

RULE NUMBER 3:

THE MORE CONTINOUS THE TIES IN A CHAIN THE BETTER THE CHAIN IS

MUTTASIL
CONTINUOUS
HIGHLY RELIABLE

MUNQATI
BROKEN
LESS RELIABLE

MUDAL
BROKEN TWICE
LESS RELIABLE

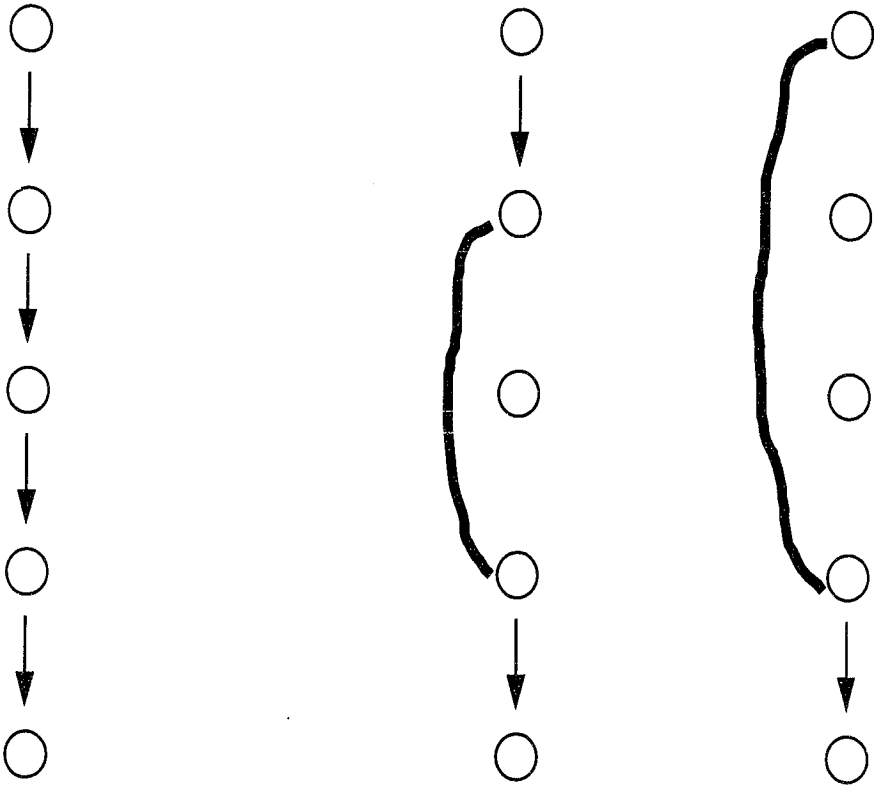

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Figure 2.8
TYPES OF CHAINS

RULE NUMBER 4:

THE MORE PROMINENT THE FIGURES IN A CHAIN THE BETTER THE CHAIN IS

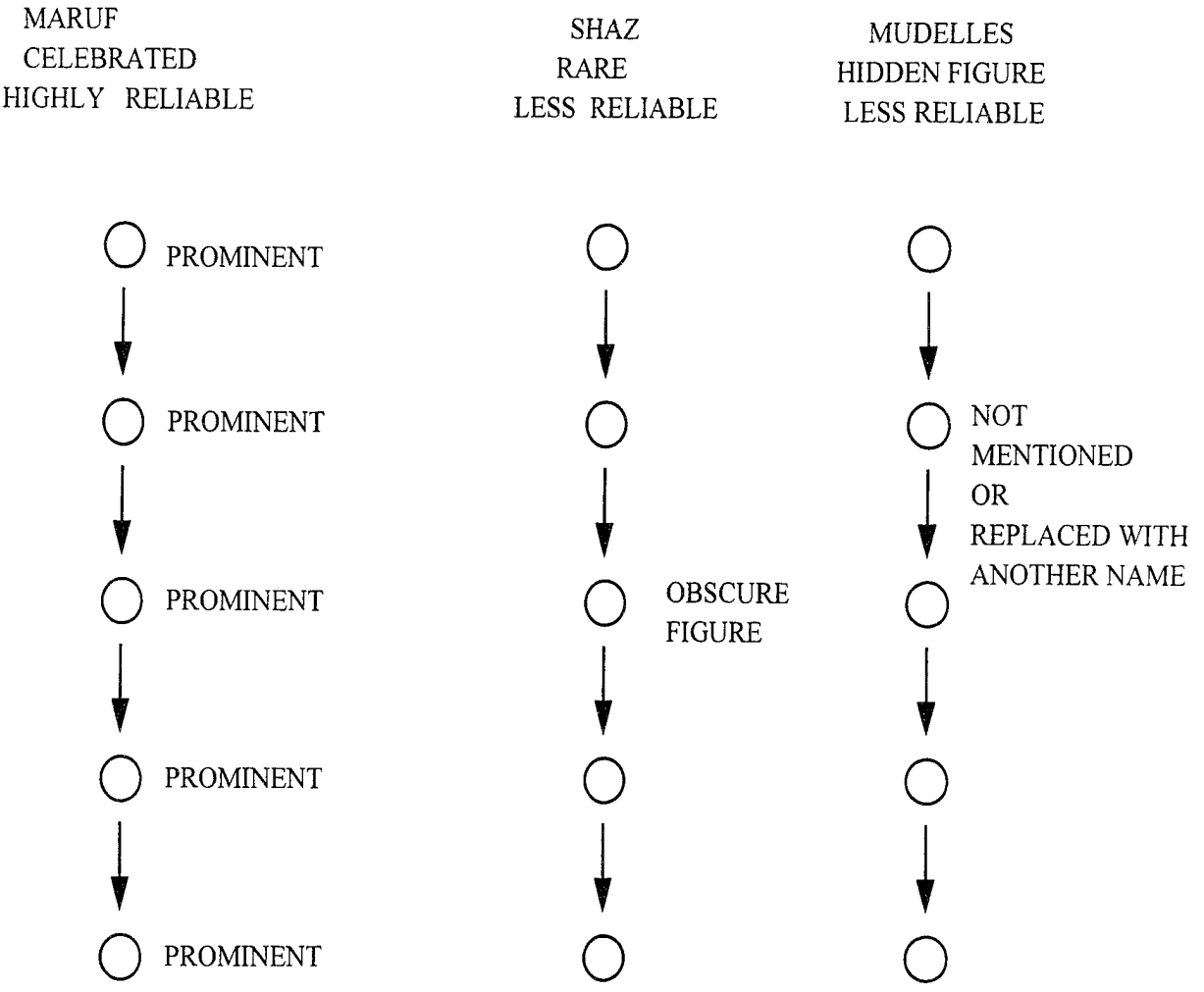

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Figure 2.9:
TYPES OF "RELATION"

RULE NUMBER 5

THE MORE ADEQUATE THE METHODS OF RELATION THE BETTER THE CHAIN IS

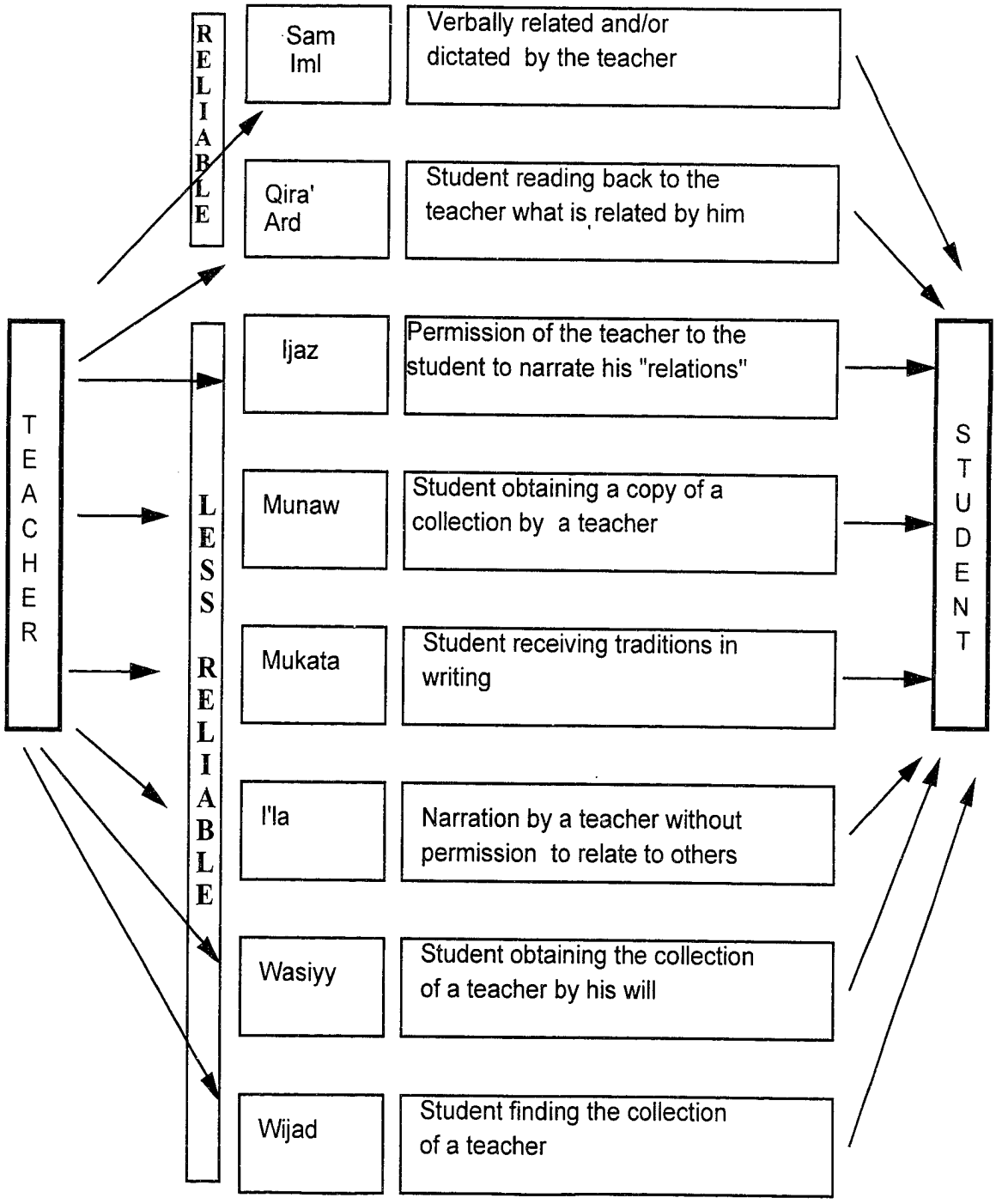

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Figure 2.10

RULE NUMBER 6:

THE MORE COMPETENT THE NARRATORS, THE MORE RELIABLE THE CHAIN.

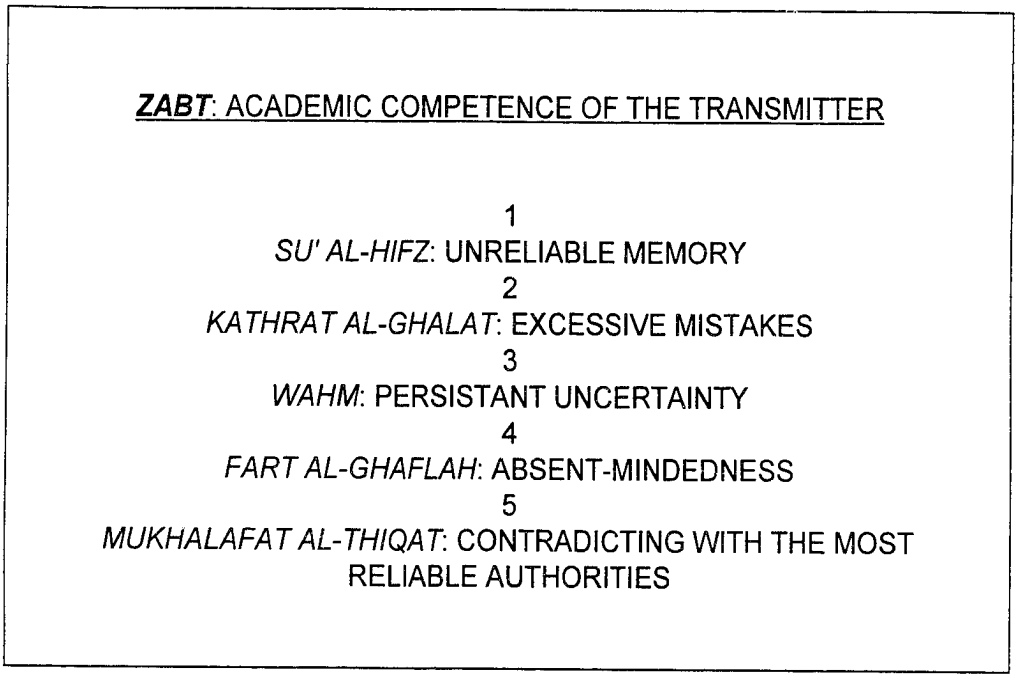

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Figure 2.11

RULE NUMBER 7:

THE HIGHER THE CHARACTER OF THE NARRATORS THE MORE RELIABLE THE CHAIN.

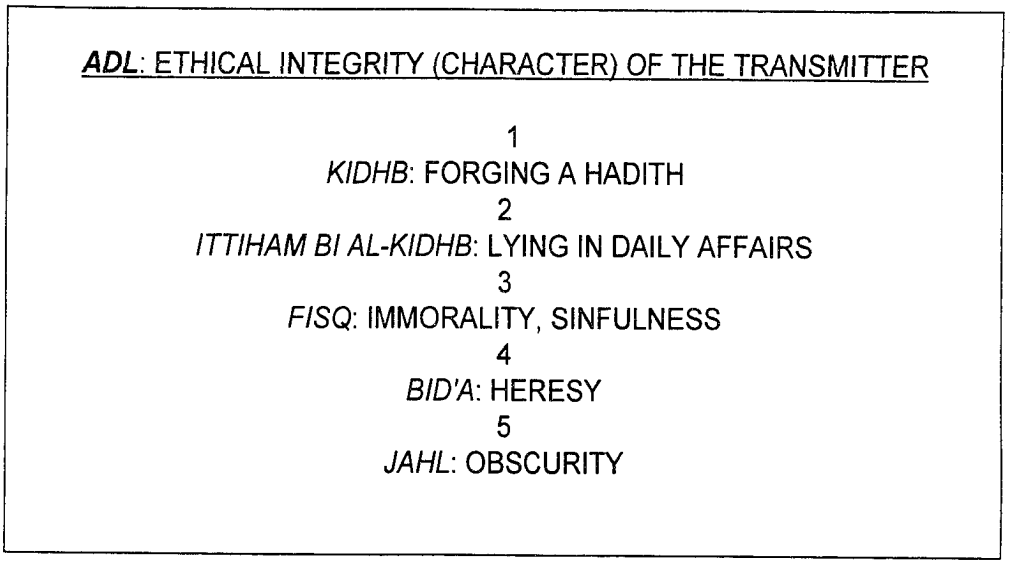

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Table 2.12

CLASSIFICATION OF HADITH ACCORDING TO TYPES OF CHAIN

CRITERIA	*TYPE*	*DEFINITION*
NUMBER OF TRANSMITERS	ALI	CONTINUOS ISNAD WITH RELATIVELY LESS NUMBER OF TRANSMITTERS
	NAZIL	CONTINUOS ISNAD WITH RELATIVELY MORE NUMBER OF TRANSMITTERS
NUMBER OF CHAINS	MUTEWATIR	ISNAD WITH SO MANY CHAINS THAT REASON REJECTS THE POSSIBILITY OF FORGERY
	MESHUR	ISNAD WITH MANY CHAINS BUT NOT ENOUGH TO GIVE A PERFECT CERTAINTY
	AHAD	AT LEAST ONE CHAIN IN EACH LAYER
CONTINUITY OF CHAIN	MUTTASIL	CONTINUOS
	MUALLAQ	MISSING: ONE OR MORE NAMES FROM THE BEGINNING OF ISNAD
	MUNQATI	MISSING: MORE THAN ONE (OTHER THAN COMPANION) NAME BUT NOT IN ROW
	MURSAL	MISSING: COMPANION'S NAME
PROMINENCE OF TRANSMITTER	MARUF	ISNAD WITH ALL PROMINENT FIGURES
	SHAZ	ISNAD WITH AN OBSCURE NAME IN IT
	MUDDLES	ISNAD WITH A HIDDEN FIGURE
VALIDITY OF HADITH	SAHIH	PERFECTLY RELIABLE
	DA'IF	LESS RELIABLE
	HASAN	RELIABLE
	MAWDU'	NOT RELIABLE- FORGED

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Figure 2.14

HADITH IN ISLAMIC LEGAL REASONING

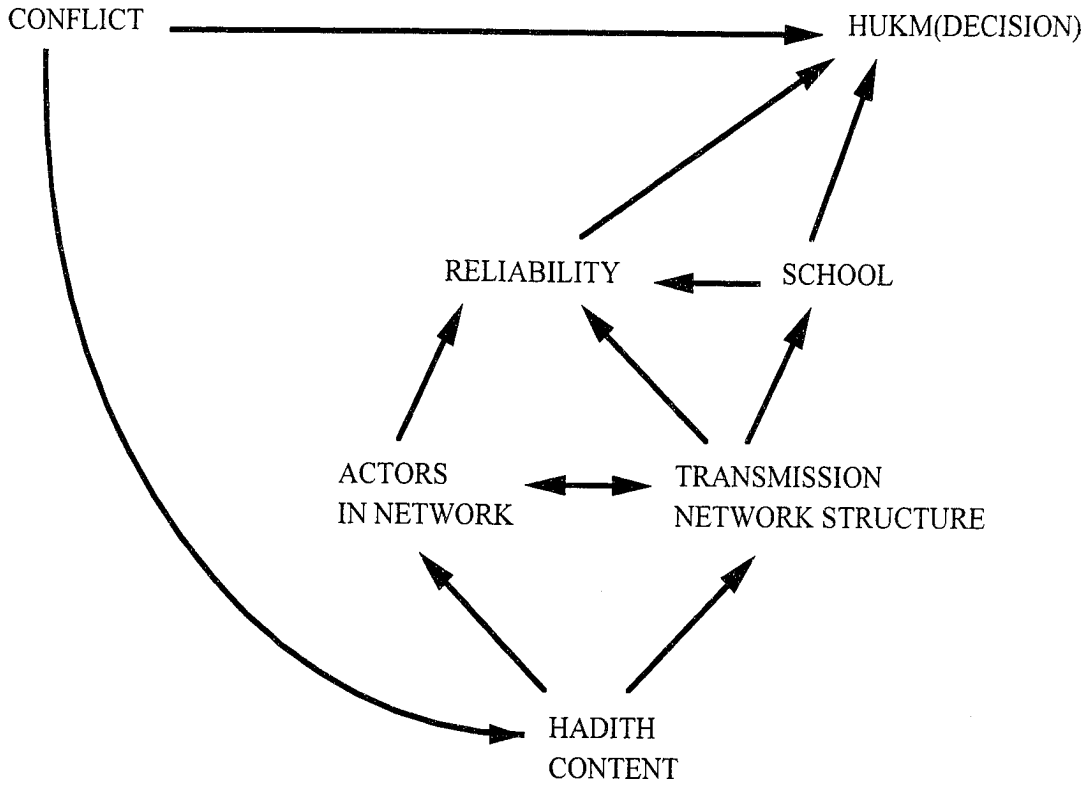

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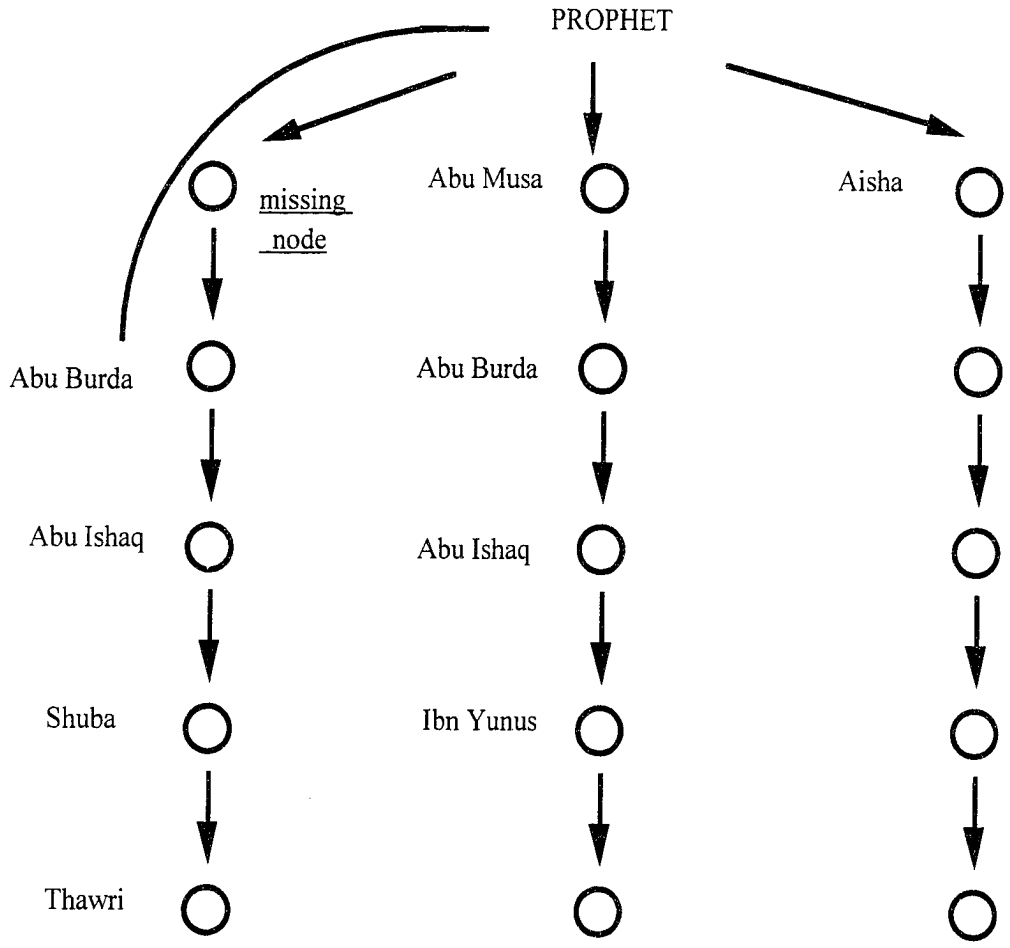
Figure 5: Isnad and Hukm
Transmission Network Structure and Legal Decision

Hadith: "Marriage contract is invalid without the permission of the guardian."



Chain 1: Mursal Chain 2: Ahad Chain 3: Ahad

SCHOOL	ISNAD			*HUKM* (decision)
	CHAIN 1	CHAIN 2	CHAIN 3	
HANAFI	No	No	No	Invalid
SHAFII	No	Yes	Yes	Valid
MALIKI	No	Yes	Yes	Valid
HANBALI	No	Yes	Yes	Valid

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Chapter 3

Interpretive Framework

THE CEASELESS SYNERGY BETWEEN LITERARY AND SOCIAL STRUCTURES

This chapter delineates the interpretive framework to be used in the present study. First, it critically reviews the models of the relationship between narrative and social structure. Second, it elaborates on the recent reciprocal models, as an alternative to the earlier non-reciprocal ones, of the relationship between discursive and social structures. Finally, it outlines how this model can bring more light to the interaction between literary and social structures which, through an uninterrupted ceaseless synergy, constitutes what we commonly came to call social organization.

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Robinson Crusoe did not need a language. Disconnected completely from human society in an isolated island, he lived for a while a solitary life and functioned without speech. Nor did Adam need a language. As the first and the only man, he had no one to talk to. The image of social actor in the traditional social theory resembles that of Crusoe or Adam, for it strips social actor, action and organization away from language. Traditional social theory conceives speech as a peripheral phenomenon, if not merely an epiphenomenon, that sociologist can do without.

Yet, we are neither Crusoe, nor Adam. If we eliminate speech from our day to day life, no social organization, from family to state, can survive. "A social system in the present sense is not possible without language" (Parsons 1964: 34). Furthermore, by uncoupling discursive and social processes, traditional social theory created a big gap between two mutually dependent social planes as well as a discrepancy between our day to day social experience and thought.

Coupling the literary and social patterns through a reciprocal process provides a solution to the question of the relationship between speech and action. The reciprocal model does not annihilate the dialectic between words and deeds and maintains the tension between the two. The dialectic between words and deeds is a fundamental and a long established one to literary and social theory. Yet, there are different responses as to how these two relate to each other. Traditionally, either they are treated in complete isolation from each other or one is reduced or conflated to the other. Recent alternatives to these one sided theories explore their relationship without reducing or conflating one to the other. From this perspective, a reciprocal or circular causal model to explain the interplay between literary and social patterns replaces non-reciprocal causal models. One

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of the leading advocates of this new approach is Andrew Abbott (Abbott 1984, 1988, Abbott and Hrycak 1990,1992a, 1992b,1995).

White's recent work marks a fundamental shift in social theory towards this direction (1992, 1996) which aims to bring language back in. He explores how social ties and narratives are mutually constructed through language use and couples the long divorced linguistic and social patterns. By doing so, he breaks away not only from the traditional social theory represented by Marx, Weber, Durkheim and Simmel, but also from social constructionist approach, originally formulated by Berger and Luckman. The constitutive approach to language, which characterizes White's work, is fundamentally different from the social constructionist approach, which has originated from the work of Berger and Luckman. The concern of the latter is to explain how our concepts and symbolic structures are historically and socially constructed, which also suggest a non-reciprocal model. Furthermore, it is grounded on the conventional referential approach to language as a symbolic means of expression. White's attempt, on the other hand, is to tie language in the social action through a circular model in which language and action are inseparably intertwined[1].

Taking the issue on a broader plane, I claim that the views of the relationships between language use, narrative and social structure are founded on a particular concept of language, whether it is reflective or constitutive of social action. The first is based on

---

[1] Schotter's work suffers from such a confusion. On the one hand, he argues for "discursive constructionism," but on the other hand, unknowingly, he conflates this perspective to the conventional social constructionism. These two stands, however, are founded on different perspectives to language. "Discursive constructionism" of Schotter is, of course, social, yet, it is more precise in its focus on the mutual relationship between language and social organization because of its stress on the particular ways the two mutually shape each other.

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the referential approach to language that concentrates on how language is used solely as a system of signification and communication[2]. The latter, however, is based on awareness that language, in addition to its referential role, serves in establishing and maintaining inter-personal relations and constructing social networks. Recent literary and social theory, as I will outline below, gradually move to this direction (Culler 1988).

Language use, and thus narrative and metanarrative, from this perspective, are reflective, but most importantly, constitutive of social actions, relations, and structures. Social ties constitute social structures, yet, discourse and stories shape ties and bestow meaning upon them. From the interaction of the two, metanarrative emerges. From integrated perspective, narrative and social networks, both intricately related to each other in subtle and unstable ways constitute a narrative social structure.

Following the prevailing perspectives, one can analyze structure of narrative and social relations separately. However, my purpose here is to explore their mutual relationship more fully. I subscribe to structural realism and do not in any way conceptualize social structures as mere narratives. Instead, my purpose here is to explore the problematic of the multi-layer complex relationship between content and configuration of a social network.

Instead of adopting non-reciprocal models that attempt to reduce narrative to social structure or vice versa, I will use a causally reciprocal model which will allow me to demonstrate the interplay between narrative and social structure. This model, at the same time, facilitates transitions between macro and micro levels as well as qualitative

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[2] For an example, see Hanks' work, *Referential Practice.*

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and quantitative aspects of social structure. On the micro level, actors are the attributed agency that finds its expression in various forms of narratives created, modified or selectively conveyed by them, as well as in metanarrative activity. The reciprocal model allows us to view both structure and narrative, as well as configuration and content, and thus to explore more fully what is going on in a network.

Structuralism has several strains rather than a unified and homogeneous outlook. Common to all these strains is the idea that there exists a structure to signification, which can be discerned and explained with the same tools in social and cultural contexts. Consequently, structuralism extends methodological models initially developed by structural linguistics to all aspects of culture and society (Susser, Culler 1975, 1988: 17; Lefkovitz 1989: 60-80). Speaking of the explanatory model used by structuralism, Culler writes, "... as the example of a 'scientific' discipline, it suggested to critics that the desire to be rigorous and systematic did not necessarily entail attempts at causal explanation. An element could be explained by its place in a network of relations rather than in a chain of cause and effect" (Culler 1975: 255). Although they both share the same interpretive framework, there is a gap between literary and social structuralism that needs to be bridged. Yet, this gap cannot be bridged, I argue, unless the underlying referential concept of language is replaced by a constitutive approach to language.

Figure 3.1: How to bridge the gap between social and literary structuralism?

The present gap between the two strands of structuralism and the non-reciprocal models therefrom is a result of the referential approach to language. This is because

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referential approach can produce only non-reciprocal models that privilege action over speech. Once the referential approach is replaced by a constitutive approach to language, most of the problems blocking the way of social theory in coupling literary and social processes will be solved.

How does Narrative Relate to Social Structure?

I will first critically review the non-reciprocal, deterministic and reductionist models, before turning to the mutually causal models which will be used in this study. I will also show how each model is founded on a particular concept of language. More concretely, I will outline how non-reciprocal models are based on a referential image of language while reciprocal models are rooted in a constitutive image of language. The exemplary models that I will discuss below demonstrate the long quest among scholars from a broad range of disciplines for an interpretive framework that will account for the relationship between literary and social phenomena. The puzzle, however, has yet to be solved.

Non-reciprocal Models: Referential Language

The referential approach allows us only to produce non-reciprocal models. From this perspective, language refers to "reality" and thus is only in secondary importance to it. What one-sided theories do can be summarized as follows: first, un-couple language use from social actions and relations, second, reduce or conflate one to the other. Classical structuralism both in social and human sciences is characterized by the referential approach to language. As a reaction to this approach which downplays the

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role of language, speech act theory, with the purpose of elevating language to the level of action, conflated speech to action and re-conceptualized speech as action (Austin).

Among the striking examples to non-reciprocal models, Narratology has a special place. Its central question on how things are ordered in social and literary planes (mimesis (telling) vs. diegesis (showing)) can be traced back to Aristotle and Plato (Chatman 32). Classical structuralism isolates language from social relations and thus suggests a self contained system.

In contrast, speech act theory and deconstructionism can be seen as two renown forms of reaction against this isolated and ahistorical classical approach to language. Deconstructionism, nevertheless, conflates language to extra-linguistic phenomena by turning everything extra-textual into texts. Speech act theory, on the other hand, with the purpose of emphasizing the importance of speech and elevating it to an equal level with social action, defined speech as an act which requires reducing speech to acts. In contradiction, Baker argues the opposite. For him, social patterns can be reduced to discursive patterns.

The referential approach problematizes the relationship between referent and language, sign and signified. The way the referent is conceived by this approach as the given and the fixed entity to which speech refers poses problems because it is not easy to build a picture of social organization without including speech. This approach produces a rather Newtonian mechanistic image of social structure in a two dimensional space.

A more sociologically oriented referential approach problematizes the relationship between context and speech but it takes them as given without looking at how they emerge in the first place. It also treats them as fixed entities. Yet neither the referent nor

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the context can be taken as given or fixed entities because they are unstable and unfinished relational constructs. Neither the referent nor the speech are fixed entities. Nor is the meaning that is believed to be stored in symbolic acts.

Narrative without Social Organization

The study of narrative, or Narratology, English translation of a French neologism, *narratologie*, which claims that the study of narrative texts constitutes a new science (Bal), can be seen as a prime example of isolating narrative from its social context. Bal defines Narratology as "the theory of narrative texts" (Bal 3). For him, a narrative text is "a text in which an agent relates a narrative" (Bal 5).

This isolationism is founded on a referential approach to language which is determined by "truth value" which denotes "the 'reality' of the actants within the actantial structure" (Bal 34-36). Bal argues that events in narrative and outside narrative follow the same rules, yet he completely disregards the significance of this connection in his approach to narrative. "Structuralists," claims Bal, "often work from the assumption that the series of events that is presented in a story must answer to the same rules as those controlling human behavior, since a narrative text would otherwise be impossible to understand" (Bal 1994:6). The ancient Greeks referred to this a *mimesis,* that is imitation of reality or merely telling what happened.

Scholes and Kellogg, in their book *The Nature of Narrative,* also contend that for a narrative to exist there must be two requisites, a story and a story-teller (1968: 4, 240). Valid, as this may be, from their perspective, this approach ignores the narrative social structure in which the story, the listener and the story-teller are embedded. From their

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perspective, the sole concern of narrative is to discover the patterns in the series of events (beginning, middle, and end). Bal summarizes this approach as follows: "Once we have decided which facts can be considered events, we can then describe the relationships which connect one event to the other: the *structure* of the series of events" (Bal 18)[3]. The current studies of narrative from the perspective outlined above merely concentrate on the text, and aim to determine two things: (1) how faithful it is to 'reality' it imitates, (2) how the events in the text are connected to each other which must also imitate the way they are inter-connected in the outside world. Both purposes are evidently rooted in a referential understanding of language.

Social Organization without Narrative

Referential approach in social and human sciences sees language as a representation of the *real* and thus in secondary importance to it. From this perspective, speech is seen either completely irrelevant to social organization or, at most, its symbolic representation. The referent, the social, on the other hand, is variably constructed by divergent strands of social and literary theory. The outcome is either complete isolation or conflation of literary or conflation (Archer 1989) of the literary to the social. Hence

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[3] "A method for obtaining this description is discussed in the following paragraphs. Starting from Barthe's assumption that all fabulas are based upon one model, we can begin to search for a model that is so abstract that it may be considered universal—until, that is, the model in question is either rejected or improved. This model is then 'laid upon' the text that is being investigated; in other words, we examine the way in which the concrete events can be placed in the basis model. The purpose of this work method is not to force the text into a general model and then conclude that the text is indeed narrative. Such a procedure could at best be useful for testing doubtful cases when trying to specify the corpus. Rather, a confrontation between a concrete fabula and a general model allows the description of the structure of the fabula of the text in question to be stated more precisely *with regard to* the basis model by which the specific structure is placed in relief and made visible. A 'perfect fit' as well as any deviations from the basis model can influence the meaning of the text" (Bal 18-19).

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comes an image of social actor resembling to Adam or Crusoe, stripped off from discursive dimension.

This approach rightly emphasizes the way discourse and narrative are socially constructed, but completely ignores how social structures are in turn narratively constructed. The result is a non-reciprocal causal model, and reductionist. Narrative, for them, is a symptom and the real meaning lies elsewhere. The task of the analyst is to debunk the narrative and discover the real meaning. Even as a referential system language is not straightforward, it functions indirectly. This approach can be traced back to Marx, if not earlier. Marx conceived literature as superstructure that is produced by infrastructure, thereby privileging the latter over the former.

In contrast to the other founding fathers of sociology such as Weber, Durkheim and Simmel, who, quite curiously, remain almost completely silent on the issue of language, discourse and narrative, in a few tangential comments he makes, Marx at least acknowledges a place for language in the working of society. For Marx, language and thought are dependent variables; "that neither thoughts nor language in themselves form a realm of their own, that they are only a *manifestations* of actual life" (1978: 118). In *German Ideology,* Marx writes,

> Language is as old as consciousness, language *is* practical consciousness that exists also for other men, and for that reason alone it really exists for me personally as well; language, like consciousness, only arises from the need, the necessity, or intercourse with other men. Where there exists a relationship, it exists for me: the animal does not enter into *"relations"* with anything, it does not enter into any relation at all. For the animal, its relation to others does not exist as a relation. Consciousness is, therefore, from the very beginning a social product, and remains so as long as men exist at all (Marx 1978: 51).

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Literary theorists who subscribe to classical Marxism still see language as a superstructure and literary structures as representations of a real phenomenon, that is social relations (Jameson 1981:145-148)[4].

> We would therefore propose the following revised formulation: that history is *not* a text, not a narrative, master or otherwise, but that, as an absent cause, it is inaccessible to us except in textual form, and that our approach to it and to the Real itself necessarily passes through its prior textualization, its narrativization in the political unconscious (Jameson 1981: 35).

Jameson calls narrative a "socially symbolic act," reminding us of Burke who also called language "symbolic action" (Burke 1966). What Jameson means by this is the act of interpretation of the text. "Interpretation is here construed as an essentially allegoric act, which consists in rewriting a given text in terms of a particular interpretive master code" (1981: 10). Interpretation is an inevitable act because we cannot confront texts immediately. Hence comes metacommentary, the interpretive master code or the political ideology, that determines the way we variably carry on the socially symbolic act of interpretation.

Theory's task should, then, be to expose the implicit master code by deconstructing the dominant metacommentary. In this connection, Derida's work, which represents a sophisticated obliteration of the literary in favor of the social, comes to mind. His work shows how he reduces the social to the textual by applying a terminology

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[4] "In the sprit of a more authentic dialectical tradition, Marxism is here conceived as that "untranscendable horizon" that subsumes such apparently antagonistic or incommensurable critical operations, assigning them an undoubted sectoral validity within itself, and thus at once canceling and preserving them" (Jameson 1981: 10). Applying this perspective to structuralism, Jameson suggests that there are three, rather than two, terms to structural analysis. The absent variable, he calls, is history (1981:145-148).

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originally developed for the textual to the social. For him "there is nothing outside text" and social acts also must be treated as texts whose referent are power relations. Derida's approach reduces the text to the extratextual by turning everything extratextual into text and texts to representations (Anderson 1989; Ellis 1989; Kamuf 1991:8-19).

At a later date, Parsons went further than the epiphenomenonalism of Marx in recognizing the necessity of incorporating language in social theory, yet he did not seriously pursue this tangent interest. "Language," he writes, "as that concept is generally understood, is not an isolated phenomenon" (1976: 356). For Parsons, learning language, which is a necessary condition of becoming part of society, cannot be possible without entering into social relations. Parsons writes,

> We know quite definitely that the individual does not develop language spontaneously without undergoing a socially structured learning process in relation to others. It is quite definite that this process must be part of a system of social relations which is orderly within certain limits, however difficult it may be to specify the limits in detail. It is altogether probable that many protohuman groups failed to make the transition to the human sociocultural level of action because of failure to fulfill the prerequisites of the emergence of language or of some other functionally essential aspects of culture (Parsons 1976:356).

Furthermore, a social system, Parson suggests, is impossible without language. Nor is it possible to reproduce and maintain the social system without the help of language. Parsons writes,

> Thus a social system in the present sense is not possible without language, and without certain patterns of culture, such as empirical knowledge necessary to cope with situational exigencies, and sufficiently integrated patterns of expressive symbolism and of value orientation. A social system which leads to too drastic disruption of its culture, for example

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> through blocking the processes of its acquisition, would be exposed to social as well as cultural disintegration (Parsons 1964: 34).

Although Parsons acknowledged the vital importance of language for the construction and maintenance of a social system, and refuted the traditional image of social structure uncoupled from the literary structure, his concept of language was still heavily influenced from the prevailing referential approach to language. The primary social function of language(s), for him, was transmitting meaning: "the use of language is a process of emitting and transmitting messages, combinations of linguistic components that have specific reference to particular situations" (Parsons 1968: 357). Since Parsons did not seriously pursue his interest to its logical ends, the task of conjoining literary and social practices, as I will show in the remainder of this chapter, was left to the future generations of social and human scientists.

One of the first series attempts to add this missing dimension, that is language, to social theory is Habermas who suggested to "linguistify" social action. Habermas attempts in his *The Theory of Communicative Action* to append the linguistic dimension to the works of the founding fathers of sociology by cross-fertilizing and retooling them from a contemporary perspective. His project is to reconstruct the concept of society as "an ideal communication community," founded on a conceptual framework of "normatively regulated" and "linguistically mediated" social interactions. He borrows the latter two concepts from Mead and Durkheim respectively in order to overcome the limitations of Weber's purposive activity and rationality. This, he suggests, can happen through "taking as out guide the idea of "linguistification" (Habermas 1989: II, 2).

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Another prominent example of one who foregrounded the role of language in social life is Foucault. Yet, his work is also characterized with referential approach to language and conflating the literary and social to each other in different stages of his career. Since, he had different minds at different times, it is daunting to treat Foucault's work as a coherent body.

> "In his earlier work, where 'discourse' was presented as an abstract structure of thought, it was also viewed as uninfluenced by non-discursive elements like interests and power. Consequently at this stages he had to emphasize the *arbitrariness of discursive changes*, which was effectively to conclude that cultural dynamics can be described but cannot be grasped theoretically. In his later work he switched his stress to the other side of the divide and overemphasized the role of power in constituting knowledge, which now became *relative to* Socio-Cultural contingencies. However, such contingencies were viewed as patternless processes where domination was confronted by a recalcitrant 'agonism', a sort of inveterate thirst for struggle, independent of particular conditions. Consequently, the later work endorses the *arbitrariness of Socio-Cultural interaction* because no account is given of why, when, or how people do struggle" (Archer 1989: xviii).

The above survey demonstrated that the referential approach to language would allow only non-reciprocal and reductionist explanatory models of the relationship between literary and social patterns. The non-reciprocal model can only be achieved by doing violence to both linguistic and social structures. They for the most part reflect the bias against speech and language and conflate or reduce the literary phenomenon to the social phenomenon or attempt to treat the latter in terms created initially for the former. None of these models can sufficiently capture the interplay between literary and social structures. The recent orientation in this quest, however, moves rightfully towards a reciprocal model based on a constitutive concept of language which I will discuss next.

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Reciprocal Models: Constitutive Language

One can see from the above survey that non-reciprocal frameworks marked an important stage of development in the way we had perceived the relationship between language and social organization. Regardless of their reductionism, they increasingly stressed the importance of language and its place in social life, which was a non-issue in the classical period of social theory. They may even be considered to have prepared the ground for the arrival of reciprocal models because they did half of the task by drawing a causal line going from the social to the literary, only to be complimented by another causal line going from the literary to the social. These stages can be seen as different phases in the query for an answer to the question on the relationship between words and deeds.

The ceaseless synergy between words and deeds, we recently came to know, can only be demonstrated by applying a constitutive outlook to language. This uniterrupted interplay between narrative and social structure is best demonstrated by a reciprocally causal model of culture and social structure. Saussure, the founder of modern structural linguistics, can be considered to be the first to notice this strong connection although he did not elaborate on it much and his views on this issue have not been appreciated until recently. However, as I will show below, it is increasingly adopted by scholars among social scientists, literary theorists, and linguists.

Both social and human scientists in increasing numbers have come to accept a constitutive view of language and to explain the relationship between language and social action through reciprocal models. In the reciprocal model, causality works both ways.

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Traditional non-reciprocal models, on the other hand, suggest a one-way causality. I will show below just by way of example that in the social sciences, White, Sewell, Abrahamson and Fombrun, Somers, and Emirbayer and Goodwin have variably suggested such a model. Culler also provides a survey of scholars from various disciplines who adopted this approach (Culler 1988: 15). There are others who would be difficult to enumerate here, nor is it necessary to provide a catalog of them.

Literary theorists and linguists also increasingly acknowledge the relationship between literary and social phenomena. Contemporary literary theory in its various strains shares a common interest: "connecting the literary and the non-literary" (Culler 1988: 23). The linguists I will discuss below, because their work is crucial for the present study, include Silverstein and Lucy on metalanguage, in particular reported speech. Ong's work on orality and literacy will also be discussed in this conjunction because it will be used to identify oscillating modes of narrative between the verbal and the written in the history of hadith transmission network.

Saussure on the Relationship between Society and Language

If Saussure is the first architect of structuralism in the modern sense, then he is to acknowledge the relationship between social and literary processes as well. More importantly, unlike his contemporaries, he rejected the reduction of one to another. To his credit, he demonstrated that society and language cannot be imagined separately, nor can they be reduced to each other. Yet, as a linguist, he concentrated on "language as a social institution" and his primary concern was on linguistic patterns. Consequently, he

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did not fully address the mechanisms that connected these two inseparable and mutually dependent planes. This was thus left to the future generations.

Saussure's image of language and the community of speakers is best illustrated by a graph he included in his book (Saussure 78). This graph is reproduced here for convenience.

Figure 3.2: Language, time and community of speakers

As the above figure illustrates, according to Saussure, the connecting mechanism between language and the community of speakers is time. "Language is no longer free, for time will allow the social forces at work on it to carry out their effects" (Saussure 78). Change and continuity are jointly produced by the interaction of language and the community of speakers—which are connected through time. Saussure continues, "This brings us back to the principle of continuity, which cancels freedom. But continuity necessarily implies change, varying degrees of shifts in the relationship between the signified and the signifier" (Saussure 79).

It is evident that Saussure recognizes a dynamic mutual dependence between language and the discourse community without conflating or reducing one to the other. Saussure discusses reductionist views and rejects them. For Saussure, literary and social mechanisms are so intrinsically coupled that the whole field of language can be subsumed under the title of sociology.

He asks, "must language be combined with sociology?" (Saussure 6). However, he concludes, this would not be correct because it would lead to reductionism. Language,

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for Saussure, is a "social fact," a term possibly borrowed from Durkheim, and jointly owned by all social sciences, yet it cannot be reduced only to a "social fact" either. Likewise, speech is a social act and requires at least a dyad, or the "speaking circuit" as Saussure calls it, to take place. Saussure claims, "The act [speech] requires at least two persons; that is the minimum number necessary to complete the circuit" (Saussure 11). Language, argues Saussure, belongs to the individual (micro structures) and to society (macro structures); therefore it must be studied on both planes. Saussure calls the former "speech" (*langage, parole*) and the latter "language" (*langue*)[5]. Similarly, there are diachronic and synchronic structures on both micro and macro levels. It is possible to map Saussure's query for structures in the following way.

Figure 3.3: Map of Saussure's query for structures

Literary Theorists: Narrative and Social Action

Building on Saussure's vision, literary critics expanded structuralist query in two ways: first, to the direction of daily narrative by emphasizing the similitude between the structures of literary and non-literary texts; second, to the direction of social life by emphasizing the interplay between social and literary processes. These two

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[5] "But what is language [*langue*]? It is not to be confused with human speech [*langage*], of which it is only a definite part, though certainly an essential one. It is both a social product of the faculty of speech and a collection of necessary conventions that have been adopted by a social body to permit individuals to exercise that faculty. Taken as a whole, speech is many-sided and heterogeneous; straddling several areas simultaneously—physical, physiological, and psychological—it belongs to the individual and to society; we cannot put it into any category of human fact, for we cannot discover its unity" (Saussure 9).

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developments are interrelated. Once literary theory successfully claimed daily language use, it became possible to investigate its relationship with daily life from a literary perspective. This expansion in focus gave unprecedented primacy to language in the interpretation of social action.

Literary theorists employ a constitutive approach to language and aim to demonstrate the crucial role of language in the construction and re-generation of social identities, control mechanisms, and structures. Reciprocal causality is used as a method to connect literary and social mechanisms. Culler provides a list of literary theorists who subscribe to a reciprocal mode in the relationship between literary and social phenomenon (Culler).

Thanks to their re-definition of their paradigm, the influence of literary theorists expanded to areas that were traditionally left to other disciplines such as history, anthropology, political science, sociology and psychology. Increasing numbers of scholars from these disciplines revise the conventional approach that neglect the role of language and begin to problematize the relationship between their subject matter and language use.

Barthes: Narrative Constitution of a Spectacle

Barthes argues that "narrative's function is not to represent, it is to constitute a spectacle."[6] For Barthes the coherence, unity, and naturalness of the text out of sequence are "myths" to be denied by the critic whose task is to ceaselessly break and interrupt the narrative text, and disregard

[6] "Society is a spectacle he [Barthes] can help explain, by revealing to us some of the mechanisms by which it obscures its artificiality" (Sturrock 1979: 61).

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its seemingly natural divisions (Barthes 1974: 13-16; 1988: 95-150).[7] Barthes's tool in doing that is Semiology. Semiology/Semiotics[8] is originally suggested by the Swiss linguist Saussure. Saussure postulated semiology (from the Greek *semion,* sign) as that which would study 'the life of signs within society.' (Saussure 16). Saussure envisioned that linguistics should remain only as a part of semiology, and he acknowledged that the success of his linguistics was due to this approach. The project was to be taken up later by Barthes. Semiology is not primarily concerned with the content, thus the referential dimension, as such but with the forms that enable sounds, images, gestures, etc. to function as signs (Moriarty 1991: 23).

Barthes questions the referential approach not only to language but also to all social signs and problematizes what it assumes as natural. Like Bakhtin, he stresses the communal structure needed for language and the meaning to be possible. Barthes, furthermore, sees the role of listener, or the reader, more important than the teller, or the author. Barthes proclaimed "the death of the author" by shifting the authority on meaning from the author to the reader through reversing the traditional image of the way in which meaning is produced.

> Classical criticism has never been concerned with the reader; for that criticism, there is no other man in literature than the one who writes. We are no longer so willing to be the dupes of such antiphrases, by which a society proudly recriminates in favor of precisely that it discards, ignores, muffles, or destroys; we know that in order to restore writing to its future,

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[7] "We shall therefore star the text, separating in the manner of a minor earthquake, the blocks of signification of which reading grasps only the smooth surface, imperceptibly soldered by the movement of sentences, the flowing discourse of narration, the "naturalness of ordinary language" (Barthes 1974: 15). See also Hayden White (1987: 35-36; Sturrock (1979: 52-80).

[8] The term 'semiotics,' deriving from the American philosopher Charles Sanders Pierce, is now more generally accepted than semiology, *semiologie.*

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> we must reverse the myth: the birth of the reader must be requited by the death of the Author (Barthes 1989 [1968]).

Denying the complete authority the author and the sign/word traditionally enjoyed is necessary for a more complete understanding of the way in which the social sign system, a part of which is language, operates in producing and reproducing the social system. Nothing should be seen in these processes as natural and must be put under critical inquiry, especially claims of authority.

> Here we discern the total being of writing: a text consists of multiple writings, proceeding from several cultures and entering into dialogue, into parody, into contestation; but there is a site where this multiplicity is collected, and this site is not the author, as hitherto been claimed, but the reader: the reader is the very space in which are inscribed, without any of them being lost, all the citations out of which a writing is made; the unity of a text is not in its origin but in its destination, but this destination can no longer be personal: the reader is a man without history, without biography, without psychology; he is only that *someone* who holds collected into one and the same field all of the traces from which writing is constituted (Barthes 1989 [1968]).

Linguists: Discourse and Social Action

Similar to literary theorists, an increasing number of linguists also problematize the relationship between pattern in discourse and social action. Discourse analysis and pragmatics are particularly concerned with the ways language construct and is constructed by social organization. In this connection, the works of Silverstein, Lucy and Ong are especially important for the concerns of the present study.

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Silverstein: Reflexive Language and Reported Speech

The recent attempt to foreground metalinguistic activity and the reflexive aspect of natural or ordinary language is significant not only for studies of language structure and use but for all research in the human and social sciences with an interest in discourse as well (Lucy 1993: 1-4). This new orientation departs from and elaborates further on the constitutive role of language. Most of our talk is about talk, others or ours, past or future, which is called reflexive language, or metalanguage. If our language did not have the reflexive capacity it has now, we would not be able to comment our other talk and, consequently, our daily life would be impaired. "This [language] use depends in crucial ways on the reflexive capacity of language, that is the capacity of language to represent its own structure and use, including everyday metalinguistic activities of reporting, characterizing, and commenting on speech" (Lucy 1993: 1).

Reported speech, unique to the human language (Hockett 1963:13, Lyons 1977, Silverstein 1976: 16, Lucy 1993: 9, Gombert), is a crucial metalinguistic activity. "Among the most important such explicitly reflexive activities is *reported speech,* speech which purportedly re-presents another specific speech event" (Lucy 1993: 2). Thus, the patterns in reported speech present a special interest for social network analysts. Reported speech, as I will show below, has an extremely important role in the way social networks are constructed and maintained. Reported speech is also especially important in building indirect ties with those who are in different time and space from the social actors. Sociologists, using methods from social network analysis and metalinguistics, can

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show the parallelism between the uniqueness of human language and the uniqueness of human social organization.

The reflexive power of language and its various uses in everyday life are currently explored from three perspectives: (1) the logico-linguistic tradition which, from a referential approach to language, makes a distinction between language that refers to objects (object language) and that which refers to other language events (metalanguage); (2) the semiotic-functional tradition which emphasizes the centrality of metacommunicative framing of all language use; (3) the literary performance approach which foregrounds the use and power of reflexive speech in transforming exiting contexts, especially in verbal arts.

Silverstein's work on metapragmatics aims to delineate the patterns and structures involved on this newly discovered plane as well as metapatterns emerging from its relationship to (mere) pragmatics and its object, whether its the same, different or fictive speech event. Silverstein argues that social/discursive interaction is contingent upon concurrent operation of the three planes, ordinary speech, pragmatics, and metapragmatics. Indexicals, which serve as pragmatic and metapragmatic signals, tie these planes to each other and to the social context in which speech event occurs. Each interaction, from this perspective, creates an "interactional" and a "denotational" text (Silverstein 1993: 36).

> But DISCURSIVE INTERACTION—to name the social happening that language use indexically constitutes—does, indeed, seem to have a coherence as a dynamic event that maps presupposed cause onto entailed effect. And this coherence seems to require a modeling in terms of realtime durational phases during which the discursive interactional

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> "work" is accomplished in the medium of indexical signaling (which, it should be recalled, is nothing more than the signal-form-centered projection of presupposed/entailed context). That is, the "event" model of discursive interaction, with whatever internal serial stages and hierarchical relationships. Is already a *meta*-pragmatic representation of the facts of indexicality, attributing to them a COHESIVE STRUCTURE that orders discursive interaction as some INTERACTIONAL TEXT with event-relevant sequentiality, accomplishable or achievable purposivity, etc. (Silverstein 1993: 36-37).

Silverstein defines his concept of denotational text as follows.

> Referring-and-predicating in the usual construal of these are, from this point of view, purposively accomplishable or achievable event-types central to which is a special kind of mapping that we will term here the DENOTATIONAL TEXT. Such a text, which many theorists tend to identify incorrectly_ with interactional text, has seeming concreteness to the extent that referring-and-predicating are understood as the central, or even exclusive, purposive functions of discursive interaction (cf. most information-processing or logical views of the coherence of discursive interaction) (Silverstein 1993: 37).

Silverstein's analysis employs a constitutive approach to language and metalanguage to demonstrate the sophisticated operation of language in several planes in continuous interaction with each other as well as with the social context. In the process both the social and the linguistic, which make each other possible in the first place, are mutually produced and reproduced.

Linguistic phenomenon has multilayers in the way Silvestein perceives it. There is language and metalanguage, pragmatics and metapragramtics. The interrelationship between these levels, in addition to their relationship to the social action, is the new problematic Silverstein brought to linguistics. Silvestein tries to show how these levels are differentiated from each other and how they dynamically interact in the social

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process. I also adopt such a multilayered image of language here in this work, which opens up new possiblilities that classical uni-layered approach to language does not afford. Employing such an image, I will argue below that the interplay between discursive and social patterns are better demonstrated on the level of metalanguage.

Ong: Changing Modes of Narrative between Orality and Literacy

Silverstein's work sheds light on the micro level interaction between language and social action. The macro level interaction and the historical processes therefrom still beg an explanation. Ong's work on the macro level analysis of interaction between changing modes of discourse and social change complements, I can say, Silverstein's micro level analysis.

It is well known to social scientists that the changing modes of production affect social structure. How about changing modes of discourse? Ong undertakes the task of exploring the transition to writing, and its sequel to print. He attempts to unearth the origins and the consequences of the changing modes of discourse in our social life. The medium and the technology used in the production and marketing/dissemination of narrative had undergone historical changes, from oral conversation to writing, from writing to print, from print to electronic media. What are the correlates of these changes of discursive production in our social life, their origins, and consequences?

> To say that a great many changes in the psyche and in culture connect with the passage from orality to writing is not to make writing (and/or its sequel, print) the sole cause of all the changes. The connection is not a matter of reductionism but of relationism. The shift from orality to writing intimately interrelates with more psychic and social developments

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> than we have yet noted. Developments in food production, in trade, in political organization, in religious institutions, in technological skills, in educational practices, in means of transportation, in family organization, and in other areas of human life all play their own distinctive roles. But most of these developments, and indeed very likely every one of them, have themselves being affected, often at great depth, by the shift from orality to literacy and beyond, as many of them has in turn affected this shift" (Ong 1995: 175).

The macro level analysis of interaction between discursive and social patterns will probably gain more interest as we move now into a new stage with the advent of the computers and the Internet. We already observe how communities emerge in cyperspace, how they conflict with each other, and how they strive for control. They even commit crimes. The New York based local newspaper, *The Village Voice* published an article titled, "*A Rape in Cyberspace or How an Evil Clown, a Haitian Trickster, Two Wizards, and a Cast of Dozens Turned a Database Into a Society*" (Dibbell 1993: 36-42). The article describes how a rape took place on the Internet and how the community reacted, after long debates, by capital punishment. Of course, both the crime and the punishment were virtual as was the community itself, consisting of people on their computers from miles away.

> I have come to believe that they [his experiences within the virtual community where the rape and reactions against it took place] announce the final stages of our decades-long passage into the Information Age, a paradigm shift that the classic liberal firewall between word and deed (itself a product of an earlier paradigm shift commonly known as the Enlightenment) is not likely to survive intact... the commands you type into a computer are a kind of speech that doesn't so much communicate as _make_things_happen, directly and ineluctably, the same way as pulling a trigger does. They are incantations, in other words, and anyone at all attuned to the technosocial megatrends of the moment—from the growing dependence of economies on the global flow of intensely fetishized words

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> and numbers to the burgeoning ability of bioengineers to speak the spells written in the four-letter text of DNA—knows that the logic of the incantation is rapidly permeating the fabric of our lives. ...

His experience on LambdaMOO shook, if not completely changed, the political views of Libbell about freedom of speech and the liberal distinction between speech and action—which constitutes a remarkable example on the far reaching ramifications of changing modes of discourse. "The more seriously I took the notion of virtual rape, the less seriously I was able to take the notion of freedom of speech with its tidy division of the world into the symbolic and real" (Dibbell 1993: 43).

> I can no longer convince myself that our wishful insulation of language from the realm of action has ever been anything but a valuable kludge, a philosophically damaged stopgap against oppression that would just have to do till something truer and more elegant came along. Am I wrong to think this truer, more elegant thing can be found on LambdaMOO [the name of the computer where the aforementioned database is saved]? Perhaps I continue to seek it there, sensing its presence just beneath the surface of every interaction" (Dibbell 1993: 42).

Yet the old modes of discourse never completely recede due to the advent of new technologies of discourse. As the invention of cars did not make the bicycle disappear, the electronic media will not completely replace the other modes of discourse. Computers did not replace the pen and paper. Nor did writing substitute for oral conversation. Perhaps, the electronic media, just as writing and printing, will open new possibilities for social organization by reproducing it, and by being reproduced by it.

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Social Scientists: Language and Social Organization Conjoined

An increasing number of social scientists, as I mentioned earlier, apply a mutually-causal model to the relationship between literary and social patterns. The scholars whose works reviewed below should be seen only as examples because the purpose is not to provide a catalog of names who subscribe to this view but rather to map a recent orientation among social scientists from various disciplines. I will briefly review the views of Sewell, Emirbayer and Goodwin, Abrahamson and Fombrun, Somers, Steinmetz and Hart, and finally White.

In contradiction to Baker's non-reciprocal model, Sewell develops a causally reciprocal model concerning the relationship between culture and structure. For him, "symbolic activity both shapes and is shaped by phenomena not reducible to symbolic meaning--for example, interpersonal communication networks...Texts should be seen as social products that have social consequences" (Sewell 1994: 32). He explains his model in the following way: "They are linked to extratextual realities both through their authors, who creatively use existing linguistic conventions to carry out their socially formed intentions, and by readers, who are influenced by texts but also interpret them--again, creatively--in terms of their own socially specific identities and interests" (Sewell 1994: 37). Sewell's perspective is an important indication of departure from reductionism towards a reciprocal model (1992).

Emirbayer and Goodwin also suggest a reciprocally causal model in order to account for the "multiplicity of structures--societal as well as cultural--within which actors are situated in any given moment." They propose that "[t]hey [network analysts]

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would do well also to thematize the complex ways in which actors' identities are culturally and normatively, as well as societally, determined--the empirical interpenetration, in other words, of those cultural and social structures...." They try to develop "a truly synthetic account of social processes and transformations that takes into consideration not only structural but also cultural and discursive factors..." (Emirbayer and Goodwin 1994).

Abrahamson and Fombrun explain the relationship between culture and social structure by a "circular influence process." "Most importantly," they write, "we specified a circular influence process between value-added networks and macrocultural homogeneity: Interorganizational cooperative and competitive interdependence both shape macroculture and are stabilized and perpetuated by the macroculture they engender" (Abrahamson and Fombrun 1994: 750).

Somers, Steinmetz, and Hart also subscribe to causal reciprocity, although in varying terms. Analyzing their work, Sewell writes, "[l]ike all five authors in this series. Steinmetz addresses the rather different question of how narratives shape the lived history--the question of what Margaret Somers calls "ontological narrativity" and Steinmetz himself calls "social narratives." The premise of these articles is that narrative has what Janet Hart calls a "dual role": it is not only a means of representing life, used self-consciously by historians, novelists, and storytellers, but a fundamental cultural constituent of the lives represented" (Sewell 1992: 482-483).

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White: Mutual Construction of Ties and Stories

For White, whose model I will be using in this study, narrative reflects and constitutes ties while ties presuppose and generate stories. White explores the intricate ways identities, ties and stories interplay to produce a social structure. His emphasis is on the attempts of control and how these attempts relate to identities, stories and ties. "Stories," writes White, "are essential vehicles for elaborating networks..." (1992: 67). "Stories describe the ties in networks" (1992: 65) for actors and onlookers (1992: 69)," and constitutes them. "A tie becomes constituted with story, which defines a social time by its narrative of ties" (1992: 67). "Stories come from and become a medium for control efforts: that is the core" (White 1992: 68).

Control efforts, for White, result from and develop into multiple and multilevel identities intermeshing with each other to form a social organization (1994: 3-64, 312-316). Embedded within a broader social organization, identity is a relational concept different from "self" and "personality." Contentions and contingencies produce identities in social action while identities generate action. "Identity," as defined by White, "is any source of action not explicable from biophysical regularities, and to which observers can attribute meaning" (1992: 6). Identities, like ties, are narratively constructed. They are multiple and multilevel, each accompanied with a set of stories, again exhibiting the interplay between the literary and the social. Identities remain as sites of conflict and can

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survive only if "they fall into self-reproducing configurations ...which inducts as it embeds an identity into still further social organization" (1992: 23)[9].

White stresses that switching language is the key process to demonstrate the interdependence between, and the coevolution of, social and discursive structures. In the process of switching talk, social actors and their tie remain the same, though modified by the newly added content, whereas the stories and the way they are told undergo change. Stories, or more clearly the accounts of what happened, are continuously and selectively altered through reflexive accountings.

> Ties of a type are both network and domain, both relation and talk. It is talk that switches, no tie—and certainly not persons, they being deposits and byproducts of the process. The substance of a tie lies in what reflexive accountings are accepted in that network-domain as warranties, and in what are the presuppositions and entailments. These can all together be approximated as a particular set of accepted stories. Thus, within a particular micro-historical setting, the tie is also a boundary, which comes as the envelope of a joint selection process across story set (White 1996: 1042).

White aims to extend the discursive reflexivity, which we discussed earlier, to social interaction and firmly tie them to each other. For him, reflexivity characterizes both discourse and social interaction. Hence comes the challenge of managing our accounts and ties *via* careful and/or spontaneous switchings which results in a greater

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[9] The embedding social organization, for White, must be perceived in its spatial (social and physical) and temporal (synchronic and diachronic) context. In the hadith transmission network, ages later, narrators--whose identities are formed and embedded in the context of the larger structure--are called to take sides as friends and foes to criticize and defend the identities of their predecessors. The ceaseless contention over identities gave rise to the flux of identities for narrators through time even after their demise. In a clientelist structure, such as the isnad system, if the identity of one's patron is in jeopardy, so is his or hers. By defending the identity of one's patrons, and their patrons ad infinitum, one defends his or her identity.

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challenge: managing the ambiguity in discourse and social relations in presence of onlookers, the public.

> In continuing reflexive processes of mutual perception, the switchings to publics being negotiated may not appear abrupt or even be marked, either by those relations that go along in that switch or by those that do not. At least at a micro scale of dyad, there can be many realizations of publics that are strategic. But publics may sustain censoring among fellow temporary inhabitants, censoring which accords with some culture-wide code of politeness rather than the concerns of specific network-domain (White 1996: 1056).

Switching between networks, as this work demonstrates, can be synchronic or diachronic. Switching between the former, as White argues, is necessary for the rise of language registers. Narrative, on the other hand, as this study aims to show, comes from and survives through diachronic switchings between network domains to which it gives life at the first place. Discursive patterns, as White foregrounds, "evolves in mutual accommodation with some form of dominance order" (White 1996: 1039). I will also use both synchronic and diachronic switching of language and network to shed light on the structure of dominance, or power/authority, in a narratively constructed social network which I will introduce in greater detail in the following chapter.

I outlined above how the quest to account for the relationship between words and deeds took various turns. The examples I reviewed in this connection are far from being exhaustive. There are many others whose work I could not discuss here due to space constraints such as Geertz, Bruner, Tilly, Bearman and Shotter, among many others from divergent disciplines contributing to the reciprocal model as an alternative to the linear model.

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I showed with the above survey that the move towards rapprochement between literary and social structuralism on the issue of relationship between literary and patterns in diverse fields reinforce each other. Increasing numbers of scholars from divergent fields have recently come to acknowledge that neither narrative and discourse, nor action and speech can be uncoupled. Instead they attempt to couple them through a circular model. In the introduction of his book, *Language in the Inner City: Studies in the Black English Vernacular,* Labov formulates this interpretive framework succinctly: "it [the language use] defines and is defined by the social organization ... " (Labov 1984: xiii).

How to Bridge the Gap between Literary and Social Structuralism?

"What does one gain, what does one perceive by moving through these layers of comprehension? Patterns of patterns—metapatterns" (Volk 1995:1). Metapatterns produce metastructures. Literary and social patterns, brought to bear upon each other, jointly produce metapatterns. Human social organization is a metastructure conjoined by speech and action. Speech is perceived to be a distinctive capability of humans which has its undeniable role in their social actions and relations which distinguishes human social organization from those of animals (White 1992). Social organization stripped from language is not human. What is gained by coupling literary and social processes as metapatterns is this distinctive nature of human social organization.

Such an image can be created by bringing literary and social structuralism to bear upon each other which would replace the rather mechanistic and non-reciprocal models of social process (Abbott). In recent decades, structuralism has made considerable advances in social and literary fields. These rather isolated attempts produce segmented

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understanding of language and society which recent studies try to integrate to construct a more comprehensive image of social and literary processes. Yet, there is still a gap between the social and literary structuralism.

Social and Discursive Authority

One example of how such an integrated approach can enhance our understanding would be the issue of social power. Although social and discursive power always come together, the common practice today in human and social sciences is to use one, from a linear causal perspective, to explain the other. Since they always exist together, it is easy to advocate both models: social power leading to discursive authority, or discursive power leading to social authority.

Yet, as I will argue in the following chapters, both network centrality and discursive power are contingent upon each other. Baker also writes, "political authority is, in this view, essentially a matter of linguistic authority" (Baker 1990: 4-5). Yet, in order to demonstrate this, we cannot rely on the traditional non-reciprocal models on the relationship between discursive and social power.

Each social network is at the same time a cultural domain (White 1996). In other words, the borders of a discourse community overlap with the borders of a social network. Conventionally, the question of power has been treated separately on both planes that led to reductionist interpretations. The sociological problem, from this perspective, has been to determine which has primacy over which. Some have argued that the social plane has supremacy, while others argued the opposite. In contrast, from an integrated perspective that I have outlined above, we can expect new questions to

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emerge. For instance, how does social and discursive power/order mutually produce and reproduce each other? Why do social actors with social authority have the discursive authority as well?

Conclusion: Coupling Literary and Social Patterns

The above critical survey, however, showed that there is a large-scale movement in human and social sciences towards bridging the gap between various strands of structural query. This new orientation adopts a constitutive approach to language as opposed to traditional referential approach. It also adopts a non-linear image of social process as opposed to conventional non-reciprocal models. Armed by these constitutive approaches to language and a reciprocal model for the interplay between literary and social processes, the rapprochement between the two lines of structural query grow.

Sociologists have long internalized the referential approach to language that resulted in privileging action over speech. Yet, social action is impossible to imagine without speech. However, the referential approach blocked the way of establishing the connection between language use and social process without reducing or conflating one to the other. But the recent constitutive approach to language, as I showed above, allows us to show the synergy between action and speech to construct and re-construct social structures.

The above account also demonstrates that the relationship between words and deeds, more specifically between narrative and social structure, should not be taken as a binary dichotomy, but rather as a mutually productive and constitutive dialectic. It became clear that there are problems in establishing and maintaining such a dichotomy

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because speech can be perceived as act and act can be perceived as speech due the fuzzy border between them. Yet, the dialectic and the tension should be maintained while the difference between the two is exploited in establishing a constitutive approach to language which, in turn, would allow us to understand social action and relations better.

The fallacy of conflation no more holds, giving way to the recognition of the relative autonomy of, as well as mutual interdependence between, the literary and social structures. The Crusoe or Adam like image of a social actor in literary and social theory is increasingly being replaced by an image that can stand more to everyday exprience.

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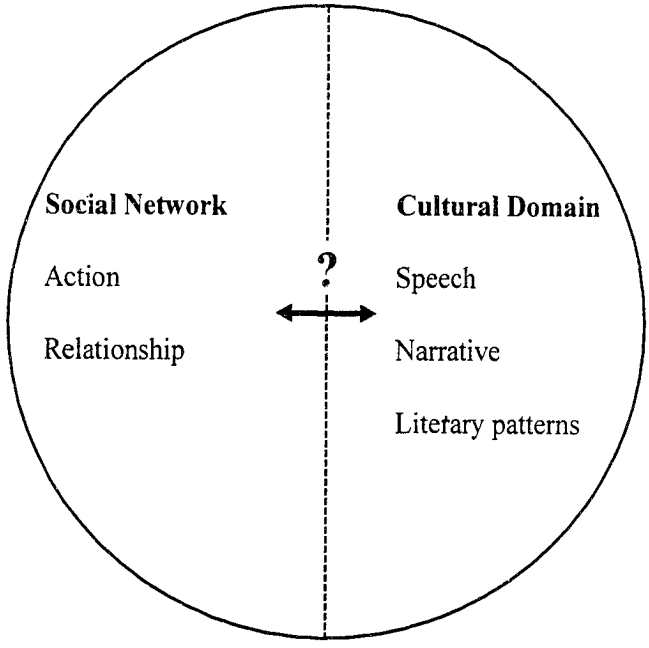

Figure 3.1: How to bridge the gap between social and literary structuralism?

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Figure 3.2: Language, time and community of speakers (Saussure 1994: 78)

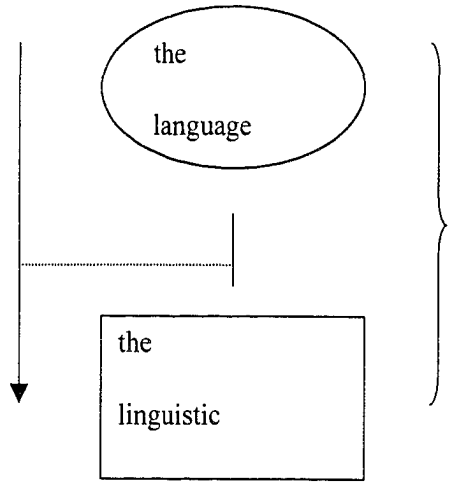

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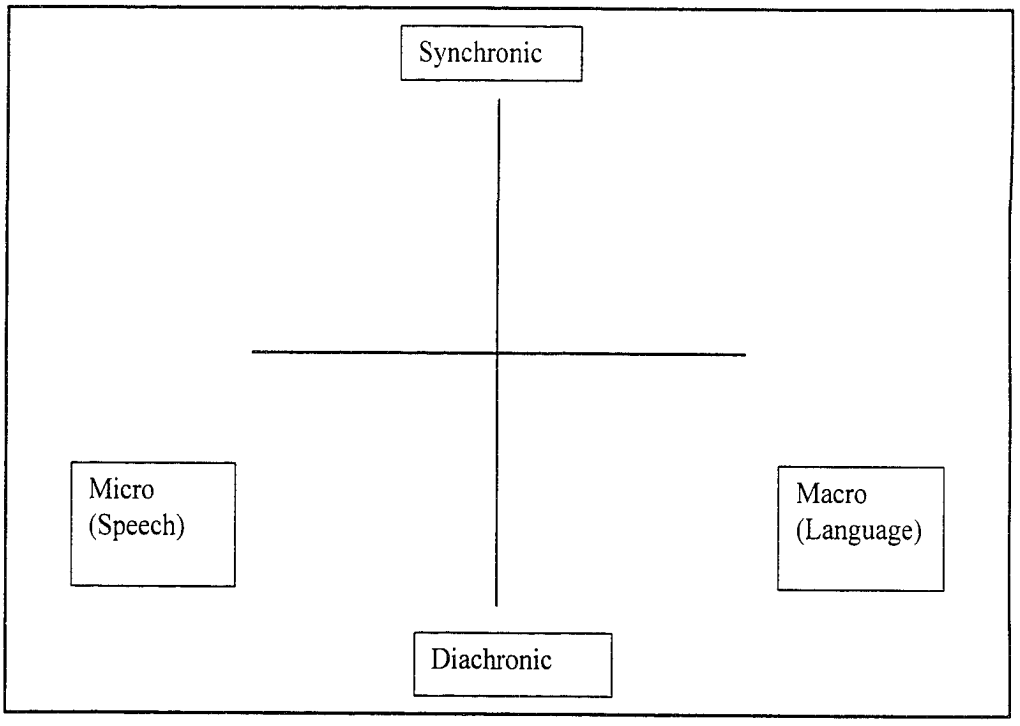
Figure 3.3: Map of Saussure's query for structures*



*This figure is further elaborated by Figure 5.4: Internal Duality of Sciences According to Saussure.

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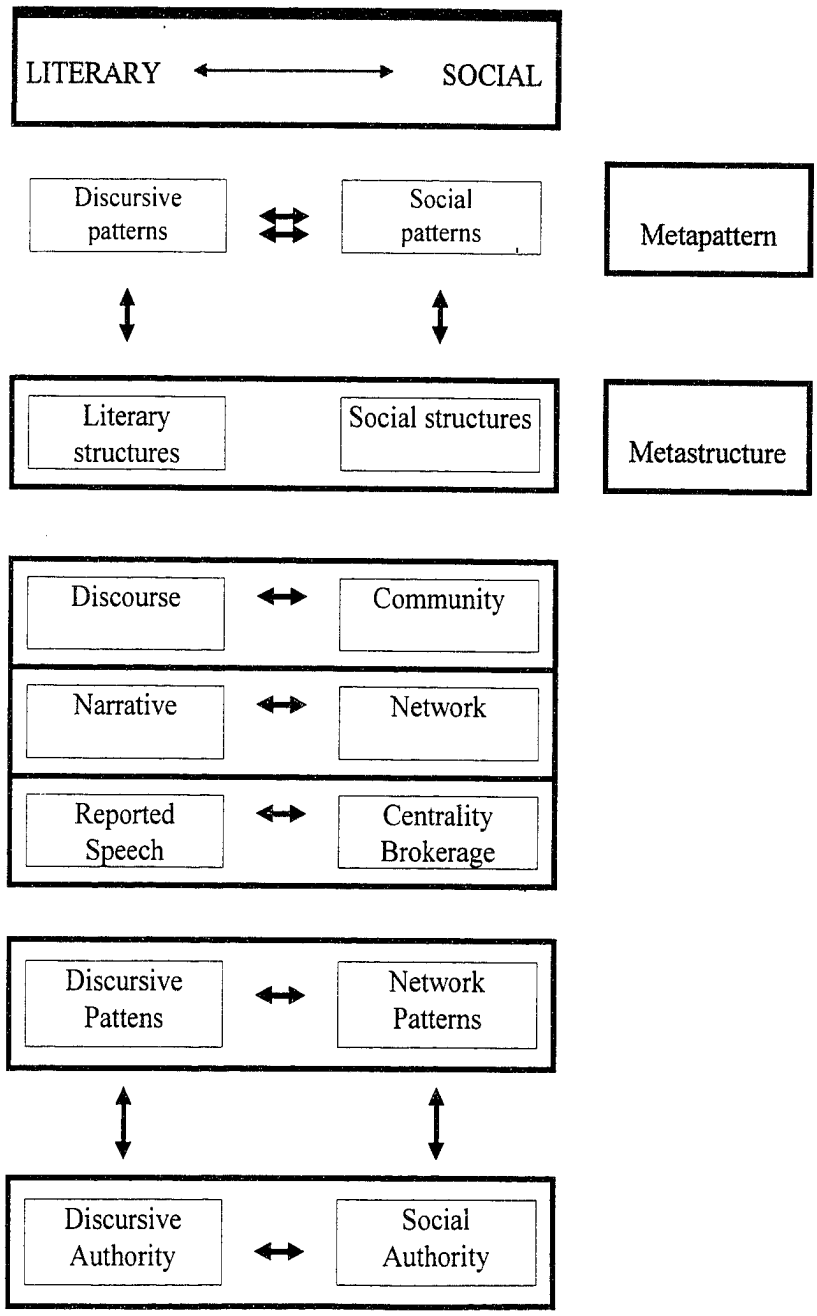
Figure 3.4: Social and discursive power in a circular model



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Chapter 4

Data

RECONSTRUCTING HADITH TRANSMISSION NETWORK:

NARRATIVES INTO NETWORKS

This chapter discusses the main and the auxiliary classical sources from which the data used in this study came. First, it introduces the historical genres that afford data about the network of scholars, which can be categorized in four levels. Second, it explores in greater detail the two main data sources, the biographical dictionaries of al-Dhahabi (d. 1348) and al-Suyuti (d. 1505), and how I extracted and processed the historical information about the network of scholars to build an electronic social network data base. Finally, it explains the problems and limitations of my data sources.

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I used historical texts to reconstruct hadith transmission network. The data mainly came from two biographical dictionaries. The first, *Tadhkirah al-Huffaz* by Dhahabi (d. CE 1348/ AH 784), includes 1176 entries; the second, *Tabaqat al-Huffaz* by Suyuti (d. CE 1505/ AH 911), includes 1188 entries. The biographical dictionary of Muhammad b. Hibban (d. CE 965/ AH 354) which includes 1602 entries is used for determining geographical distribution. Hadith compilations, in particular that of al-Bukhari which includes 7275 ahadith, are also used to tie in the information obtained from biographical dictionaries to the actual narratives and the chain of authorities. These sources along with innumerable auxiliary sources, which I will discuss below in greater detail, afforded information about the biography and network of narrators from 610 to 1505. These classical sources, as I mentioned earlier, are the collective work of the scholars from successive generations who appended the works of the earlier authors. I processed this information to establish an electronic database with 1226 social actors, organized in 26 layers, with a total of 13,712 connections. The total number of connections is symmetrically divided in half as teacher and student connections because each connection is a teacher and a student connection at the same time. Therefore, the total number of student connections as well as teacher connections is 6856.

An increasing number of sociologists derive data from historical textual sources with the purpose of reconstructing historical social networks, or the networks through time (Burt 1975, 1983, Padgett 1993, Bearman, Barkey, Barkey and Ronan 1996, Tilly, Abbott 1988, White 1963, 1970, Zuckerman 1996). These efforts are crucial for the identification and analysis of cross-temporal social structures as well as for extending social network analysis to historical sociology which offers an alternative perspective to the currently used paradigms (Skocpol). Besides historical sociology per see, although they are not interested in remote history, co-citation analysis and diffusion studies are inherently historical.

The data sources used in this study to reconstruct and analyze the network of hadith scholars have four levels. The first level is 'the individual/micro level' which consists of network-autobiographical works of scholars such as those of Ibn Hajar,

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Dhahabi, and Suyuti which will be described below in more detail. The second level is 'the local level' which consists of city histories. An example to this genre is the works on the history of Nishapur which Bulliet used in his earlier research. The third level consists of 'the general biographical dictionaries' and 'histories.' Biographical dictionaries of Dhahabi and Suyuti about prominent hadith scholars, two main sources of this study, are outstanding examples of this level. The fourth level consists of hadith compilations. The Bukhari data that will be used to contrast and complement the network data derived from above sources are the most commonly known example of this genre.

Before I discuss the particular historical works from which data have been derived for this study, it would be appropriate to provide an overview to these genres.

Classical Sources about Scholarly Networks

The four above mentioned levels of network data about Islamic scholars from the medieval period are based on various genres of historiography among Muslim historians who recognized the importance of personal connections and social networks in the working of history. History, *tarikh,* meant for them primarily interrelations of individual social actors. The individual as an historical actor is not an abstract force; nor is the role of his network. The references to aggregate social actors, nations, groups, tribes, and the like, are secondary in these writings. The city, for instance, was an aggregate entity which was conceived as the web of personal relations woven over centuries. The following brief review will make clear the remarkable emphasis on social networks by classical Muslim historians.

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a. Network-Autobiographies

Prominent Muslim scholars in medieval times wrote their autobiographies following the custom and genres prevalent in their time. These include *mashyakhah* and *mujam* literature. The emphasis of these works had been on the network of the scholars with colleagues in his time, in particular to his teachers. We have to realize at the outset that their concept of autobiography was different from ours today.

A *mashyakhah* is an autobiographical work where a scholar provides a list of his teachers from whom he obtained a formal diploma, *ijazah*. Biographical information and the content of the relationship are also provided (see above, Chapter 3, Figure 3.8 illustrates the eight types of relations between a teacher and student). In particular, they record the type of diploma (*ijazah*) a disciple obtained from a master. This genre can be considered as the first level of historiography because they provide firsthand information about the networks of scholars. The drawback with this literature is the extent to which we can rely on one's own writings about himself. However, there are ways to double check this information from other sources, especially from the *mashyakhah* of scholars whose name are mentioned in one's writing as his teachers and students.

At times students went even further. They listed all, or some of, the ahadith (pl. of hadith) they received from their teachers to preclude any confusion in the future. This gave rise to a literary genre called *mu'jam* (pl. ma'ajim). This genre was not used exclusively for hadith. In fact, there were two kinds of *mu'jam: mu'jam* of hadith, exclusively dedicated to hadith teachers, and *mu'jam* of teachers, inclusive of all teachers

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from various branches. Occasionally, the term *mu'jam* of hadith was interchangeably used with the term *mashyakhah.*

These genres prevailed in the eastern part of the medieval Muslim world. Scholars in the western part, in Andalus, Islamic Spain, however, developed their own style when they recorded their academic network. They created *Fihris* (pl. Faharis) or *mufahras* and *Barnamaj* (pl. *Baramij*), borrowing both words from Persian. Compared to their colleagues in the east, scholars in Andalus put a relatively high importance on preparing a list of their teachers in the form of a *fihris* or *barnamaj*. An interesting example is Shaykh al-Tayyib ibn Muhammad al-Fasi (d. 1113 AH) who composed his *fihris* in the form of a 618 line ode (Kettani 1994: 280).

Only very few of these works have been published. Hundreds of them still remain in manuscript form written in classical Arabic in scattered libraries around the world. Kettani, in his Turkish edition of Kettani's work on hadith literature (1994: 280-289, 298-312) provides names and locations for 277 *mashyakhahs* and 72 *mu'jams,* in addition to 13 *mashyakhahs* and 28 *mu'jams* listed earlier by Kettani solely by way of example. Some of these works are alphabetically ordered—most *mu'jams* follow this pattern--while some are chronologically ordered. The number of teachers reported in these works might be a couple of thousand or only a few hundred. Below is a brief description of the *mashyakhahs* of Dhahabi, Ibn al-Hajar (773-852 AH), and Suyuti whose works are used in this study.

Dhahabi (from the 21th layer) wrote three *mashyakhas,* one long, one medium, and one short. They received several editions. The long one is called *al-Mu'jam al-Kabir*, the medium one is called *al-Mu'jam al-Latif* (or *al-Mu'jam al-Saghir*)—according

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to this work first hearing of hadith by al-Dhahabi took place at 694 AH--, and the short one is called *al-Mu'jam al-Mukhtass bi al-Muhaddithin.*

Ibn Hajar, who came later (the 24th layer), compiled two books about his academic connections. One is called *al-Mu'jam al-Mufahras*, which is chronologically ordered and provides information about the chains he established *via* listening (*sama'*) and reading (*qiraah*). Later in his life, he alphabetically ordered this work and divided it into two sections: a section for teachers who taught him disciplines concerning solely the narrative sciences (*riwayah*), and another section for teachers who taught him interpretation of narrative and other rational sciences (*dirayah*). He composed his work in 26 years from 806 to 832 AH (Kettani 286). Sakhawi (831-906 AH), who was a student of Ibn Hajar, wrote a great biographical work in two volumes about the life and work of his teacher, *al-Jawahir wa al-Durar fi Tarjamah Shaykh al-Islam Ibn Hajar*[1]. In this work, Sakhawi listed an extensive number of Ibn Hajar's teachers.

al-Suyuti, who was a student of Ibn al-Hajar[2], collected the names of his own teachers from whom he obtained diplomas in his autobiographical work named, *al-*

[1] Edited and published by Abd al-Majid and al-Zayni, 1986.

[2] Suyuti writes in *Tabaqat al-Huffaz,*

> I have a general diploma (*ijazah a'mmah*) from him. It is possible that I might even have a special diploma (*ijazah khassah*) because my father used visit him very frequently, and took his place in his absence in the legal consultation (*hukm*). Even if I could not get the opportunity to attend his lectures, to listen to his talks, and to take hadith verbally and directly (*akhz*) from him, I benefited greatly from his writings in the discipline and profited a lot from them. With his death, the door is closed and this endeavor has come to an end (*Tabaqat* 553).

Ibn Hajar's goal in life was to achieve the level of authority Dhahabi achieved three generations earlier. Suyuti reports that Ibn Hajar drank water from the sacred Zamzam spring in Mecca with the wish in his heart , which is believed to be realized by the help of God, to reach to the level of Dhahabi. Suyuti reports this as follows: "The story has it that Ibn Hajar drank from the holy spring of Zamzam in Mecca with the wish in his heart to reach to the level of Dhahabi in the memorization of hadith. He reached to that point, and even superseded it" (*Tabaqat* 552). Suyuti, in turn, wished to reach to the level of Ibn Hajar and drank the holy water of Zamzam with this wish. In his autobiography he wrote:

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Munajjam fi al-Mu'jam. Another work by him on the same subject is called *al-Mu'jam al-Kabir Hatib al-Layl wa Jarif al-Sayl.*

Writing a *mu'jam* or *mashyakhah* seems to be a common practice of record keeping about one's teachers. Usually they were for the private usage and reference of scholars. Yet, the ones that belonged to the prestigious figures were occasionally copied later on by aspiring students and survived until today. This tradition gave rise to a very rich literature that can be used now for reconstructing the networks of scholars based on first hand information from their own writings. Today, this genre is drawing increasing attention, and consequently a growing number of *mashyakhah* manuscripts are being discovered and published throughout the world.

b. City Histories

Scholars from well-known cities collected information about the cultural legacy of their city based on biographies and connections of scholars who were their countrymen. This genre of course must have increased the prestige of the city as well as the scholars who studied and resided there. The number of works in this vein reaches the hundreds. The cities that had been subject to extensive attention by hadith scholars include Baghdad, Damascus, Isphahan, Nishapur, Mecca, Madinah, Marw, and Cairo (Kettani 1994: 263-270). These works, one can easily assume, are usually based on the *mashyakhah* genre. Earlier works survive through later works that update them (Frye

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When I made my pilgrimage, I drank water of Zamzam for several wishes. Among them were reaching to the level of the master Siraj al-Din al-Balqini in jurisprudence, and reaching to the level of hafiz Ibn Hajar in hadith. I started issuing legal verdicts at the outset of the year seventy one [871 AH], and conducting hadith dictation at the beginning of the year seventy two [872 AH] (*Tabaqat* 8).

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1965: 7). Local history as a biographical dictionary of scholars with an emphasis on their networks was a new style brought about by hadith scholarship.

This study uses city level data about Nishapur. The data are derived from *al-Muntakhab min al-Siyaq* or *Muntakhab min Kitab al-Siyaq li Tarikh Nishabur* (Frye 1965, al-Mahmudi 1403 H)[3] by al-Sarifayni (581-641 H). The work, which is in Arabic and arranged alphabetically, includes biographical and network information about 1678 scholars including the author himself. The Bulliet data derived from this work include the 202 most prominent scholars. *al-Muntakhab* is an abbreviation and extension of an earlier work, *al-Siyaq li Tarikh Nisabur,* by Abdulghafir al-Farisi (451-529 H). Al-Farisi's work is also an abbreviation and update of the work of the famous hafiz al-Hakim al-Bayyi' (d. 405 H/ 1014 CE). al-Kattani reports that Dhahabi also abbreviated the work of al-Hakim (Kettani 1994: 267). There is an abbreviation in Persian as well, *Kitab Ahwal Nisabur* by al-Khalifa al-Nisaburi which is organized in 6 layers. The evolution or updating of the data about intellectual history of Nishapur in the hands of scholars from subsequent generations illustrates how the data were gathered along centuries.

c. General Biographical Dictionaries

al-Hakim's work on Nishapur scholars was also used by famous historians who composed more inclusive and general biographical dictionaries about scholars regardless to their regional origin. For instance Sam'ani, Yakut, Subki, and al-Baghdadi made extensive citations from his work (Frye 10, Rosenthal 39). This illustrates how authors of

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[3] The data were originally collected and organized by Bulliet who deserves my gratitude for letting me use them (Bulliet 1972, 1979, 1983).

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general history (*tarikh* literature) and biographical dictionaries (*tabaqat* literature) derived their data from local histories in building the network of scholars through generations. The history genre thus constitutes another level in Islamic historiography. What is meant by history here is what came to be known as *tarikh* (pl. *tawarikh*) literature which is not the same with what the term means today. It is founded on a distinct historical approach which emphasizes both the role of agency and the social networks in which they are embedded. Since for our purposes here the difference between the *tarikh* and *tabaqat* genres is not significant, I will refer to both genres as biographical dictionary literature, bearing in mind at the same time that these works served as general histories in classical Islamic culture.

Besides local histories, the encyclopedic works about particular generations must have also helped the authors of biographical dictionaries in collecting their data. For instance there are numerous encyclopedic works that are exclusively dedicated to the Companions who constitute the first layer (Kettani 254-259). Three most outstanding examples of this rich genre include the following works in chronological order. *Al-Isti'ab fi ma'rifah al-Ashab* by Ibn Abd al-Barr al-Qurtubi (d. 463 AH/1071 CE) includes biographical and network information about 3500 Companions. Ibn al-Athir al-Jazari's (d. 630 AH/1233 CE) *Usd al-Ghabah fi Tamyiz al-Sahabah* includes around 8000 entries with the last volume exclusively dedicated to the women Companions. Ibn Hajar al-'Asqalani's (d. 852 AH/1448 CE) *al-Isabah fi Tamyiz al-Sahabah* is the largest encyclopedic work in the field and provides information about 12279 Companions. All these three works are alphabetically ordered.

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al-Dhahabi authored such a general history. Apparently, he wanted his work to be the greatest of his time. He called his work *The History of Islam and the Death Dates of the Famous and the Prominent* (*Tarikh al-Islam wa Wafayat al-Mashahir wa al-'Alam*). This work was said to consist of 20 huge volumes in its manuscript form. None of the attempts to publish it completely succeeded. Ma'ruf's critical edition which has been going on since 1977 has reached 38 big volumes and does not appear to be nearing completion. It is expected that the work include around 40,000 entries about eminent men and women, organized in 70 layers. Each layer consists of people who died within a period of ten years. If one adds the number of those who are not registered as separate entries, the number goes much higher than the above figure. If we take into consideration that *the History* of al-Bukhari, who lived long ago, also included around 40,000 hadith narrators, this number would still look small compared to the data that were available to Dhahabi in his time.

The History of Islam, briefly called, is the main source of several other books al-Dhahabi authored later in his career. These works include, *TheBook of States (Kitab al-Duwal), Selected Passages on the Prominent Figures in the History of Islamic State (Nukhabat al-'Alam bi Tarikh Dawlah al-Islam), The States of Islam (Duwal al-Islam), Lessons from the News of those who Passed away (al-'Ibar fi Khabar man 'Abar), The Biographies of Eminent Celebrities (Siyar A'lam al-Nubala'),* and *The Biographical Dictionary of Prominent Hadith Narrators (Tadhkirah al-Huffaz* or *Tabaqat al-Huffaz).* The latter is the primary source from which data are collected for this study.

Dhahabi composed another encyclopedic work exclusively on the 'weak' and the 'abandoned.' He named his book as follows, *The Register of the Weak and the*

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Abandoned [Hadith Narrators] (Diwan al-Du'afa wa al-Matrukin). The work, among many other similar studies, with an exclusive focus on the 'weak' scholars, is an interesting evidence of the discriminatory process among scholars in the hadith transmission network. The work is alphabetically ordered in two volumes and includes brief information about 5099 scholars accused of incompetent scholarship until the time of Dhahabi. The level of weakness, though, varies for each scholar. In the introduction of a recent edition of the work, the editor names 20 types of weakness[4] used by al-Dhahabi in the work. Examples include 'criticized by some' (da'a'fahu ba'duhum), unreliable (laysa bi thiqah), abandoned (matruk), 'they questioned his reliability' (takallamu fih), and the like.

Almost all the works of al-Dhahabi gained remarkable acceptance in the scholarly community; they were appended later by scholars from subsequent generations. Abu al-Mahasin al-Husayni (715-765 AH) wrote *al-Tanbih wa al-Iyqadh li ma fi Zuyul Tadhkirah al-Huffaz.* Taqiyyuddin al-Makki (787-871 AH) wrote *Lahz al-Alhaz bi Zayl Tabaqat al-Huffaz.* The famous polyhistor al-Suyuti (849-911 AH) also updated the work until his time with an appendix titled *Zayl Tabaqat al-Huffaz li al-Dhahabi.* All these works are also published along with the main text. An interesting work on *Tadhkirah al-Huffaz* was produced by Ismail b. Muhammad b. Bardis (720-786 AH) who recomposed the work as a long poem with the title *Nazm Tadhkirah al-Huffaz al-I'lam fi Wafayat al-A'lam.* This work is preserved in manuscript form in Istanbul (Kettani 1994: 272).

[4] El-Mis (1988).

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d. Hadith Compilations

There is yet another, in fact the most important, intricate and challenging literary genre in Islamic culture, which was not meant to be an encyclopedic source about the life and relations of the scholars, namely the hadith compilations literature. The purpose of the hadith compiler is to provide the chain of the authorities through which the narrative passed to reach him. This data could very well be used to reconstruct the network of scholars until the time of the hadith compiler. The only drawback of this type of data is that it is based solely on the connections of a single hadith scholar. On the other hand, it is closer to the empirical world because the connections are extracted from actual chains of narration, *isnad*. Most importantly, the network connections derived from a chain of authorities which comes before the text of the narrative enables the readers to see what kind of information was passed through this channel in a particular scholarly contact.

The most outstanding and well-received hadith compilation is the hadith collection of al-Bukhari (d. 656 AH) which includes 7563 ahadith based on the most recent edition (Muhammad Ali al-Qutb and Hisham al-Bukhari 1995). It should be noted that Bukhari belongs to the ninth generation according to the stratification of al-Dhahabi. According to al-Kalabazi (333-398 AH) who composed a biographical dictionary exclusively about the narrators in al-Bukhari's hadith compilaiton, the total number of hadith narrators whose names pass in the network of al-Bukhari is 1525. This number does not seem to be very precise because based on the above data it became noticeable that al-Kalabazi failed to include all the names. For instance, the following three names are missing in al-Kalabazi's work: Yahya b. Sai'd b. Ferruh Abu Sai'd al-Kattan al-

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Ahwal al-Basri, Hisham b. Hassan Abu Abdillah al-Firdawsi al-Azdi al-Basri, and Yahya b. Hammad Abu Bakr al-Shaybani al-Basri.

Reconstructing the social network of scholars from hadith compilations is a daunting task because a considerable number of the scholars had similar, if not completely, identical short names. It is therefore a most daunting task to figure out who is who in the network. This difficulty is multiplied by the usage of the shortest abbreviations in the chains to make them as brief as possible.

One drawback of this data is it limited scope which is the network of the author of the compilation in hand. Yet, it would still be incomplete because the scholar under discussion might have authored other works as well. Reconstructing Bukhari's network based on his hadith compilation can provide only a partial picture because Bukhari alone is reported to have had no less than 1,000 teachers to whom he was directly connected. Yet, the total number of narrators in the whole hadith compilation which includes Bukhari's second step (teachers of his teachers), third step (teachers of his teachers' teachers) and fourth step (teachers of his teachers' teachers' teachers) teachers as well is less than 1600. Consequently, one needs to incorporate all the works of al-Bukhari to produce a reasonably complete picture of his network.

Besides the famous compilation of al-Bukhari, there are many other well-known hadith compilations that can be used for a complete reconstruction of the hadith transmission network. A brief list of the highly regarded hadith compilations is in order. *al-Kutub al-Sitta*, the Six [Reliable Hadith] Books, by Bukhari (d. 256 AH), Muslim (d. 261 AH), Tirmizi (d. 273 AH), Nasai (d. 303), Ibn Maja (d. 273 AH), Abu Dawud (d. 275 AH). In addition to these, Ibn Hanbal's hadith compilation, *al-Musnad,* must be

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mentioned as well. Also equally important, compilations of well-spread (mutawatir) hadith for instance by Suyuti, and Zabidi[5]. All these works along with countless others that are not mentioned here provide information about the social networks of scholars over time.

A Closer Look at the Two Major Sources

This study reconstructed the network of eminent hadith narrators until the time of al-Dhahabi based on his work, *Tadhkirah al-Huffaz* (Dictionary of Huffaz). In addition, Suyuti's work, *Tabaqat al-Huffaz* (Layers of Huffaz), provided more data to extend the network until his time, namely the sixteenth century. The latter work appends and updates the first. The two works mostly converge in information regarding the names and numbers of huffaz. However, there are differences as well. I primarily relied on Dhahabi's work which is more detailed and respected until the time it ends.

Table 4.1: Comparative Layers from Dhahabi and Suyuti

Besides these differences in the numbers of scholars in different layers, the style and the size of the two works is also different. Suyuti's work is only one volume and thus very brief although it covers a longer period compared to the work of Dhahabi which is four volumes and more detailed. Furthermore, Dhahabi presents an actual hadith that was transmitted to him through the chain of the scholar whose life he discusses.

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[5] One of the two books of Suyuti on the issue is published (N=112), the other is still in manuscript form in the Suleymaniye library in Istanbul. The work of the polyhistor Zabidi (AH 1145-1205/CE 1832-1790), famous linguist and lexicographer, is published (N=71).

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Distilling and Processing Data from Textual Sources

In the previous chapter, I presented two brief examples of entries in biographical dictionaries. In addition to these brief examples, now, I would like to present another account of an average length, from al-Dahabi's *Tadhkirah*. These accounts can in fact be very lengthy. For instance, Dhahabi developed some of them as separate works and published them individually.

In this section, using examples, I will display the method I used to extracted network data from biographical dictionaries and the steps followed to construct my database. The first step was to read the record of the scholar from the source text. The second step was to extract the relevant biographical and network information, concrete birth and death dates and places, and names of the teachers and students. The third step was to make an exhaustive list of teachers and students by making a through survey of records of all scholars from previous and future layers who might have had a connection with the scholar under investigation. Since a connection is mentioned, for the most part, only once, either in the record of teacher or student, one cannot rely only on the network information provided in the entry about a scholar.

The fourth step was crosschecking with the names and dates to eliminate elusive mistakes. The fifth step was to process the data to build an electronic database by entering the information in the data storage and retrieval program, the HADITHNET, a program I designed for manipulating cross-temporal network data as well as linking them to the narratives from which the ties come[6]. The next and the final step entailed

[6] The HADITHNET is designed to construct a multirelational database with its three interrelated components, the record of narrator, the teacher-student connections, and the record of narrative. The

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producing a sociomatrix in HADITHNET and exporting it to the analytical software used to perform the planned analyses.

The first example is the entry about the most famous hadith scholar, al-Bukhari.

> 578 (IX: 30) al-Bukhari
>
> The highest world authority in Islamic knowledge (Shaykh al-Islam), and the leader of huffaz (imam al-huffaz), Abu Abdullah Muhammad son of Ismail son of Ibrahim grand son of al-Mughira son of Bardazbah, from the tribe of Ja'f, their former ally (mawlahum), al-Bukhari. The author of *the Authentic* (al-Sahih) and many other books. His birth was in the month of Shawwal in 190 AH.
>
> His first auditing of hadith took place in 205 AH. He memorized the compilations of Ibn al-Mubarak when he was just a little boy. He grew up as an orphan and traveled with his mother and brother in 210 AH after he audited entirely the narratives of his country from Muhammad b. Salam, al-Musnadi, and Muhammad b. Yusuf al-Baykandi.
>
> He heard from [studied hadith under] Makki ibn Ibrahim in Balkh, from Affan in Baghdad, from al-Muqri' in Mecca, from Abu Asim and al-Ansari in Basra, From Ubaydullah bin Musa in Kufa, from Abu al-Mughira, and al-Firyabi in Syria, from Adam in Asqalan, from Abu al-Yaman in Humus, and from Abu Mushir in Damascus.
>
> He traveled extensively, authored books, and narrated hadith even before his beard had grown. He was the leader in intelligence, knowledge, piety and worship of God.
>
> Those who narrated from him include al-Tirmidhi, Muhammad bin Nasr al-Marwazi the Jurist, Salih bin Muhammad Jazirah, Mutayyan, Ibn Khuzaymah, Abu Quraysh Muhammad bin Jumru'ah, Ibn Sa'id, Ibn Abi Dawud, Abdullah al-Farabri, Abu Hamid ibn al-Sharqi, Mansur bin Muhammad al-Bazdawi, Abu Abdillah al-Mahamili, and a multitude of other people. He was a skinny old man, neither tall, nor short, with a skin close to brown.
>
> He used to say "when I completed collecting hadith at the age of eighteen, I began writing books on the legal decisions of the Companions and the Successors, and their opinions in the time of Ubaydullah bin Musa. I wrote *The History* (al-Tarikh) at that time by the grave site of the Messenger, May God bless him and his family and give them peace, on the moon lit nights". He is also reported as saying, "I wrote hadith from over one thousand masters."
>
> Regarding the accounts of his merits, his script Muhammad bin Ali Hatem said: I heard Hashid bin Ismail and another person saying: Bukhari used to attend hadith audition sessions with us while he was still a young boy. Yet he was not

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program aims to store not only the social connections between social actors but also the narratives from which the information about a particular connection is derived and the narrative that was transmitted through this connection.

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writing down the hadith he was hearing. This continued like that for many days. We used to advice him on that. Finally, he said: You went too far on insisting! Bring me what you wrote down. We brought him our notes. That proved that he had committed to his memory over fifteen thousand hadith from the sessions he attended with us, which was more than what we could write down, and read them all from his heart. Then, we began verifying our notebooks from his memory. At the end, he said: Do you think I am wondering in wane and wasting my days? We realized that no one can surpass him.

Muhammad b. Khumayruyah said: I heard al-Bukhari saying: "I carry in my memory a hundred thousand authentic hadith, and I also carry in my memory two hundred thousand inauthentic hadith." Ibn Huzayma said: I have not seen under the sky anyone more knowledgeable than Bukhari in hadith.

I [al-Dhahabi] say: I authored a large volume exclusively on the biography and merits of this leading scholar which includes astonishing facts.

According to al-Maqdisi, Bukhari, Muslim, Abu Dawud, and al-Tirmidhi are among the scholars of the fifth generation, out of forty layers.

He died on the night of the Festival of the Breaking of the Fast at the end of Ramadan in 256 AH, in which al-Zubayr bin Bakkar, Ali bin al-Mundhir al-Tariqi, Muhammad b. Abi Abdirrahman, Abdullah b. Yazid al-Muqri, and Muhammad b. Uthman b. Karamah, may God be merciful to them all, also died.

I [al-Dhahabi] read to Ismail bin al-Farra, Yusuf bin al-Sharqawi, Muhammad bin Bayan, and a multitude of other scholars who were told by al-Husayn ibn al-Zubaydi that Abu al-Waqt told us that al-Dawardi told us that ibn Hamuyah told us that Ibn Matar told us that **al-Bukhari** told us that Ubaydullah bin Musa told us on the authority of al-A'mash, on the authority of Shaqiq who said: I was with Abdullah and Musa. They both said: The messenger of God, may God bless him and his family and give them peace, said: "Before the end of this world comes, ignorance will prevail and the knowledge will disappear. In that time anarchy—killing, will increase."

The narrator Muslim also related the same hadith. Apparently, Abu al-Waqt heard it from Muslim as well (al-Dhahabi II: 555-557).

The structure of the entries in the biographical dictionary follows more or less the same pattern for all the scholars. At the very outset al-Dahabi gives the short name with which the scholar is known. He also identifies to which layer he belongs and what number he assigned to him. After that follows the titles a scholar was given among the scholarly community which shows his rank. We also learn about his upbringing, family, and even physical features. Then he provides the complete name of the scholar which is

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not familiar in the modern name structure we are accustomed to. Below, I will discuss the structure of Arabic names in more detail. The biographical information provided includes the birth and death dates and places as well as the date of first audition of hadith. This information is important for the scholars of hadith in determining the possibility of connection with the alleged teachers and students. For the same purpose, Dhahabi provides information about the cities a scholar traveled to and the masters he met in those cities.

We also learn about the works of a scholar and the time he commenced publishing his works as well as the conditions under which he worked. After reporting on the masters and how the scholar met them, Dhahabi provides a brief list of prominent students while warning the reader that his list is far from complete. Since he refers us to the monograph he authored on al-Bukhari, he does not go into detail.

Dhahabi relates anecdotes about the scholar in question told by him or by the scholars closely associated with him. These accounts might not always be favorable. He also reports the opinion of the scholars from later generations about the master whose life is the subject of the entry to show how public opinion had been formed about him. In the following example about famous al-Tabarani, these features will become even more evident. At the end of each entry, Dhahabi reports an actual hadith related by the scholar under investigation through a chain of authorities where Dhahabi himself is the latest node. By doing so Dhahabi displays the wealth of his own narratives and connections.

After this brief elucidation on the structure of an entry in Dhahabi's biographical dictionary, now I want to present another example to show how I proceeded to dissect the record for the scholars whose network I analyzed.

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Al-Tabarani (XII:27) 875: al-Hafiz, al-Imam (the leader of scholars), al-Allamah (the most knowledgeable), al-Hujjah (the authority), the father of al-Qasim, Sulayman the son of Ahmad the son of Ayyub the son of Mutir, affiliated with Lakhm, with Damascus, and with Tabaran, the narrator of the world. Born in 260 AH. Began auditing hadith in 273 AH in the cities of Syria, Mecca, Madina, Yemen, Egypt, Baghdad, Kufah, Basra, Isphahan, Arabian Peninsula, and many other places. He narrated hadith from one thousand or more teachers.

Tabarani compiled *the Grand Lexicon* (al-Mujam al-Kabir). It is a *musnad* (a compilation of hadith organized according to the name of the first authority in the chain of narration, the Companion, and contains all the ahadith narrated by the Companions listed) except for Abu Hurayra because, apparently, he wrote exclusively a volume on his narratives. Tabarani also compiled *the Medium Lexicon* (al-Mu'jam al-Awsat) which is six huge volumes on the narratives of his teachers where he reported their uncommon or unique narratives. It is similar to *the Book of Unique Narratives* (Kitab al-Afrad) by al-Daraqutni. In this work, Tabarani introduced his teachers and explained their merits and vastness of their knowledge in narration. He is reported to have said: "this is the book of my soul". Because he exhausted all his energy working on this book. There are excellent, valuable, and refutable narratives in the book. Tabarani also compiled *the Small Lexicon* (al-Mu'jam al-Saghir) which contains only a single hadith from each teacher he studied under. He authored many other books as well.
He was one of the knights of this discipline with sincerity and reliability. He audited narratives from Ibn Murthad al-Tabarani, Abu Zur'ah al-Thaqafi, Ishaq al-Dabri, Idris al-Attar, Bishr bin Musa, Hafs bin Umar Sinjah, Ali bin Abdilaziz al-Bughawi, Miqdam bin Dawud al-Ra'ini, Yahya b. Ayyub al-Allaf, Abu Abdirrahman al-Nisai, Abdullah b. Muhammad b. Sa'id b. Abi Maryam and others like them. His father paid the utmost attention to his education in his youth and accompanied him in his journeys for knowledge. His father was also narrating from Duhaym and the like. The birth of Tabarani was in Akka in the lunar month of Safar in the year 260 AH. His mother was from Akka.

His works also include *Book of Prayers* (Kitab al-Dua') in a big volume, Book *on Pilgrimage,* (Kitab al-Manasik), *Book of Frienship with Women* (Kitab 'Ishrat al-Nisa), *Book of Prophetic Customs* (Kitab al-Sunnah), *Book of the Lengthy* (Kitab al-Tiwalat), *Book of the Rare* (Kitab al-Nawadir), *Book of the Proofs of the Prophethood* (Kitab Dalail al-Nubuwwa), *Book of the Narratives of Shu'bah* (Kitab Musnad Shu'bah), *Book of the Narratives of Sufyan* (Kitab Musnad Sufyan), *Narrative Chains of a Group from Great Scholars* ('Amal Asanid Jama'ah min al-Kibar). He is also the author of *Book of the Narratives of the Syrians* (Kitab Hadith al-Shamiyyin), *Book of the First* (Kitab al-Awail), *Book of the Aging* (Kitab al-Ramy). He is the author of *the Grand Commentary on the Koran* (Tafsir al-Kabir), and many other things you have not come across.

Those who narrated from him include Abu Khulaifa al-Jamhi, Ibn 'Uqda, Ahmad bin Muhammad al-Sahhaf, who were at the same time his teachers, Abu

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Bakr bin Marduyah, the jurist Abu Amr Muhammad b. Al-Husayn al-Bistami, al-Husayn b. Ahmad b. Al-Marziyan, Abu Bakr b. Abi Ali al-Zakwani, Abu al-Fadl Muhammad bin Ahmad al-Jarudi, Abu Nu'aym the Hafiz, Abu al-Husayn ibn Fadshah, Muhammad bin 'Ubaydillah bin Shahriyar, Abdirrahman bin Ahmad al-Saffar, Abu Bakr bin Ridha, the last of his students to die. His student Abdurrahman ibn al-Dhakwani lived two years more than he yet he could narrate only through *ijazah* [one of the less respected ways of narration. See above Criterion 5 and the relevant table].

Yahya bin Munda listed the works of Tabarani without actually seeing most of them: his *Grand Lexicon*, two hundred volumes, *Medium Lexicon,* bound as three volumes, *Small Lexicon,* bound as one volume, *Narrative of the Ten* (Musnad al-Ashara), thirty volumes, (Musnad al-Shamiyyin), several volumes, *The Rare* (al-Nawadir), one volume, *Knowledge of the Companions* (Marifa al-Sahaba), one volume, its Sequal, ten volumes, *Narratives of Abu Hurayra* (Musnad Abi Hurayra), a huge volume, *Narratives of Aisha* (Musnad Aisha), *Grand Commentary of the Koran* (Tafsir al-Kabir), *Proofs of Prophethood* (Dalail al-Nubuwwa), one volume, *The Prayer* (al-Dua), *The Prophetic Customs* (al-Sunna), one volume, *The Lengthy* (al-Tiwalat), one volume, *Hadith of Shu'bah* (Hadith al-Shu'ba), one volume, *Hadith of al-A'mash* (Hadith al-A'mash), one volume, *Hadith of al-Awza'i* (Hadith al-Awza'i), one volume, *Shiban*, one volume, *Ayyub*, one volume, *Friendship with Women* ('Ishrat al-Nisa), a volume, *Narratives of Abu Zar* (Musnad Abi Zar), two volumes, *The Dream* (al-Ru'yah), a volume, *The Generosity* (al-Jud), a volume, *The Commanders* [al-Ilm] al-wiyah], a volume, *Merits of Ramadan* (Fadl Ramadan), a volume, *The Duties* (al-Faraid), a volume, *The Refutation of the Mutazila School* (al-Radd ala al-Mu'tazila), a volume, *The Refutation of the Jahmiyya School* (al-Radd ala al-Jahmiyya), a volume, *Good Morality of the Saints* (Makarim al-Akhlaq al-Uzza'), *Greeting the Messenger of God May God Bless Him and Give Him Peace* (al-Salah ala al-Rasul Sallallahu Alayhi wa Sallam), a volume, *The Ma'mun* (al-Ma'mun), a volume, *The Ritual Bath* (al-Ghusl), a volume, *Virtues of Knowledge* (Fadl al-Ilm), a volume, *Critique of Speculation* (Dhamm al-Ra'y), a volume, *Koranic Commentary of Hasan* (Tafsir al-Hasan), two volumes, *Narratives of al-Zuhri from Anas* (al-Zuhri an Anas), two volumes, *Narratives of Ibn al-Munkadir from Jabir* (Ibn al-Munkadir an Jabir), a volume, *Narratives of Abi Ishaq from al-Sabi'i* (Musnad Abi Ishaq al-Sabi'i), *Narratives of Yahya bin Abi Kathir* (Hadith Yahya bin Abi Kathir), *Narratives of Malik bin Dinar* (Hadith Malik bin Dinar), *What Hasan Narrated from Anas* (Ma Rawa al-Hasan an Anas), *Narratives of Rabi'ah* (Hadith Rabi'ah), *Narratives of Hamza al-Zayyat* (Hadith Hamza al-Zayyat), *Narratives of Mus'ir* (Hadith Mus'ir), *Narratives of Abi Sa'd al-Baqqal* (Hadith Abi Sa'd al-Baqqal), *Paths of the Hadith of "Whoever Slander Me.."* (Turuq Hadith Man Kadhdhaba 'Alayya), a volume, *Noah* (al-Nuh), a volume, *Narratives of ibn Hajada* (Musnad ibn Hajada), *Those who Carry the Name Abbad* (Man Ismuh Abbad), *Those who Carry the Name 'Ata* (Man Ismuh 'Ata'), *Those who Carry the Name Shu'bah* (Man Ismuh Shu'bah), *The News of Umar bin Abdilaziz* (Akhbar Umar bin Abdilaziz), *Abdulaziz b. Rafi* (Abdilaziz b.

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Rafi), *Narratives of Ruh bin al-Qasim* (Musnad Ruh bin al-Qasim), *Merits of 'Ikrimah* (Fadl 'Ikrimah), *Mothers of the Messenger of God May Allah Bless Him and Give Him Peace* (Ummuhat al-Nabiy Sallallahu Alayhi wa sallam), *Narratives of Ammarah bin Ghazya, Talha b. Musarrif and others* (Musnad Ammarah bin Ghazya, Talha b. Musarrif and others), *Narratives of the Abdullahs* (Musnad al-'Abadilah), a huge volume, *Narratives of Abu Umar b. Al-'Ala)* (Ahadith Abi Umar b. al-'Ala), *Strange Narratives of Malik* (Gharaib Malik), a volume, *Aban b. Tha'lab* (Aban b. Tha'lab), a volume, *Narratives of Abu Matar* (Hadith b. Abi Matar), *The Will of Abu Hurayra* (Wasiyya Abi Hurayra), *Narratives of Harith al-'Akli* (Musnad al-Harith al-'Akli), *Virtues of the Four Rightly Guided Caliphs* (Fadail al-Arba'a al-Rashidin), two volumes, *Narratives of of ibn 'Ajlan* (Musnad ibn 'Ajlan), *Book of Drinks* (Kitab al-Ashriba), *Book of Ritual Cleansing* (Kitab al-Tahara), *Book of Governance* (Kitab al-Imara), *Friendship with Women* ('Ishrat al-Nisa'), *Narratives of Abi Ayyub the African* (Musnad Abi Ayyub al-Ifriki), *Narratives of Ziyad al-Jassas* (Musnad Ziyad al-Jassas), *Narratives of Zafir* (Musnad Zafir), and many others.

Al-Dhakwani said, when al-Tabarani was questioned for the high number of his reports, he responded by saying: "I slept on the horses for thirty years" [he was referring to his academic journeys day and night]. Abu Nu'aym said: "Tabarani came to Isphahan in 290, listened to the scholars and traveled. Later, he came back and resided there for sixty years." Ibn Marduya said: "al-Tabarani came in 310. The governor, Abu Ali ibn Rustam, met him, took him to his circle and sponsored him by assigning him a salary from the House of Revenues, *Dar al-Kharaj*. He used to take it until he died." Abu Umar bin Abdilwahhab al-Sulami said: "I heard al-Tabarani saying: "Upon his return from Faris, Ibn Rustam gave me five hundred silver coins, dirham, but towards the end of his career, he started speaking against Abu Bakr and Umar, may Allah bless both of them, on a few small matters. I left him and never turned back again."

Ibn Faris, the author of *the Dictionary*, said that he heard the Teacher Ibn al-'Amid saying: "I used to think that there was nothing in the world more enjoyable than being a vizier or a leader which I had enjoyed until I witnessed a debate between al-Tabarani and Abu Bakr al-Ju'ani in my presence. Al-Tabarani was defeating him with his vast memory and Abu Bakr was defeating al-Tabarani with his wit. The debate continued until their voices rose to a level that al-Ju'ani said: "I have a hadith, no body has it in the world except me." Tabarani said: "narrate it." Al-Ju'ani said: "Abu Khalifa narrated from Sulayman b. Ayyub who narrated from..." until he finished reporting the hadith. Al-Tabarani responded by saying, "Sulayman narrated this hadith to me, and Abu Khalifa heard it from me. And listen from me to the same hadith through even a shorter chain." He defeated al-Ju'ani. I wished I had not had the position of vizier and, instead, were al-Tabarani so that I had the joy he had."

Ja'far bin Abi al-Sirri said: "I asked Ibn 'Uqda to repeat to me what I missed and insisted on it. He said: "where are you from?". I said: "from Isphahan." He said: "evil." I said, "Don't say that about them. There are jurists and supporters among them." He said, "Supporters of Mu'awiya." I said, "No,

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supporters of Ali, may God bless him. There is nobody there except those who like Ali more than their eyes and families." He repeated what I missed and then said: "Have you heard Sulayman b. Ahmad al-Lakhmi [meaning al-Tabarani]? I said, "I do not know him." He said: "Glorified is my Lord! Abu al-Qasim [i.e. al-Tabarani] is in your town and you do not study under him and give me all these problems. I do not know anyone equal to him."

He also said: "Do you know Ibrahim b. Muhammad b. Hamza?" I said: "Yes." He said: "I have not seen anyone equal to him in memory. Ibn Munda said: "al-Tabarani is one of the noted huffaz, narrated from Ahmad b. Abdirrahim al-Barqi. Why does he indiscriminately narrate everything he comes across with?" I said: "Yes, but he did not want him, nor did he mean to narrate from him except that he narrated from Abdirrahim al-Barqi the Seerah [narratives on the biography of the Prophet], and the like. He also made a mistake in his name and named him with the name of his brother, without any doubt. Pitfalls in this vocation are easy to fall. Al-Hafiz Abu al-Abbas Ahmad bin Mansur al-Shirazi warned against that because he said "I wrote from al-Tabarani three hundred thousand hadith. He is extremely reliable with one exception. In Egypt, he studied under a master who had a brother. Tabarani unknowingly confused the name of his teacher with the name of his brother."

Sulayman bin Ibrahim, the hafiz, said that al-Batirqani said "Ibn Marduya's opinion on al-Tabarani was negative." Then Sulayman said: "Abu Nu'aym said to him: "How many narratives did you write from him?" And he pointed to Hazm. Abu Nu'aym said: "Who saw someone equal to him?" He could not say anything. The Hafiz al-Diya said, "Ibn Marduya mentioned al-Tabarani in his *History* without criticizing him." I say: He used this as evidence that it became clear for Ibn Marduya that al-Tabarani was reliable." Abu Nu'aym said: "al-Tabarani died two nights before the end of the month of Dhu al-Qa'da, in the year 360 AH." I [al-Dhahabi] say: He completed a hundred years and ten months. His hadith filled the world because in the time of the Hafiz Ismail b. Muhammad al-Taymi he was in demand--students listened to hadith from him, then, in the time of Ibn Nasir and Abu 'Ala' al-Hamadani, his market was extremely active—they heard from him in big numbers, and, then, in the time of Abu Musa al-Madini he was considered to be the highest [i.e. the one with shortest path distance to the Prophet] to be heard. In that time al-Hafiz Abdulghani audited and learned from him *the Grand Lexicon.* Afterwards, Ibn Khalil traveled to study under him; Ziya, and others competed with each other to listen to his narratives. In the year 606, As'ad bin Said [who was a "grand-student" of al-Tabarani] became the single world authority with the shortest chain of narratives as a result of which the works on hadith and criticism became full of Tabarani's narratives.

It is related to me[7] [al-Dhahabi] in writing by Ibn Abi al-Khayr and a large group of other masters from Abu Ja'far Muhammad bin Ahmad the Pharmacist

[7] Following his method, al-Dhahabi is giving a sample narrative coming through the scholar in question to himself. This way, he demonstrates that he is connected to the prominent scholar whose life is

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who said that Fatimah the daughter of Abdillah told them that Ibn Riza reported to her from **Abu al-Qasim al-Tabarani** who reported from Abdullah b. Muhammad b. Abi Maryam al-Firyabi who reported from Israil who reported from Sammak bin Harb who reported from 'Alqama bin Wail who reported from his father that "In the time of the Prophet, may God bless him and his family and give them peace, left her home with the intention of joining in the congregation for prayers. On the way, a man met her and satisfied his desire from her. The woman screamed and the man escaped. They caught a man passing by on her way. [Upon questioning] she said: "This is the man who did to me such and such." They arrested this man she accused. They asked her: "Are you sure? Is this is the one?" She said: "Yes, this is he." They brought him to the Prophet, may God bless him and his family. When he ordered him punished, his friend who actually raped the woman stood up and confessed: "I am the one who assaulted her." The Prophet said to him: "Come closer, to be sure, God has forgiven you." He also said good words to the other [innocent] man. They said: "Are we going to stone him?[8]" The Prophet said: "He repented from his sin so much that if he repented for all the sins of the residents of Madina it would have been accepted for them too." This is an inauthentic hadith despite its clean narrative chain. Al-Tirmizi accepted it as authentic and narrated it from al-Zuhali who narrated from Muhammad bin Yunus. We have, instead, a shorter alternative chain.

Structure of names in Medieval Arabic

There is not only one name with which a scholar is always referred to. In contrast, there are short names, medium short names, and also the complete long names. The structure of the name is closely related with the multiple social identities in existence. They also reflect some of the social and cultural characteristics of medieval Islamic society.

Short names were usually derived from the name of the city, the tribe, or school of thought one belonged. However, since there are usually many scholars with similar affiliations, it is not easy to differentiate them and determine who is who. It is easy to

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investigated. Yet, he does not refrain, as we will see at the end of this narrative, from criticizing the reports of his grand teachers.

[8] The punishment of a rapist in Islamic law is to be stoned to death by the community, *rajm*. This is when the crime is completely proven without any doubt. In the lack of evidence to completely prove the

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note that "al-Tabarani", "of Tabaran", or "Tabaranian", is the shortest and most commonly used name for our scholar. Tabaran is the name of a city in Central Asia, famous with its scholars.

His long and complete name is "Abu al-Qasim Sulayman bin Ahmad bin Ayyub bin Mutayyar al-Lakhmi al-Shami al-Tabarani." The words "abu," father, "ibn/bin," son are used to describe the genealogy of the people. The name would translate to English as follows, "the father of al-Qasim, Sulayman the son of Ahmad the son of Ayyub the son of Mutir, affiliated with Lakhm, name of a famous tribe, with Damascus, and with Tabaran." This served as a very helpful device not only to know the family and genealogy of the people, but most importantly to distinguish them from each other. Not only that, the name includes information about the tribe and the city to which a person is affiliated. From his name, we recognize that al-Tabarani did not spend all his life only in Tabaran but also in Damascus. The name structure helps bring together the familial/genealogical and scholarly networks. Thus the name, which is constituted by *ism, kunya*, and *nisba*, stands out as an invaluable source of information for historians (Bulliet 1979) and sociologists.

> Arabic names, whether born by ethnic Arabs or by non-Arabs, were typically composed of several distinct parts: 1) the *ism* or first name, which was given at birth, (2) the *kunya,* a name beginning with Abu, meaning "father of," or Umm, meaning "mother of," which was theoretically acquired after one had become a parent but which was very frequently given at birth for euphonic or other reasons unrelated to potential parenthood, (3) the *nasab* or geneology, which was a series of isms, kunyas, or other names strung together with the word *ibn,* "son of," or *bint,* "daughter of," (4) the *nisba,* a name most frequently ending in *-i,*

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crime a lesser punishment is decided by the judge, *ta'zir,* which seems to be the case in the above event if it actually happened.

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> which signified some sort of an affiliation (for example, al-Baghdadi = person from Baghdad) and often served for several generations as a family surname, and 5) the *laqab* or honorific name, under which may conveniently be lumped all sorts of honorary titles, nicknames, and epithets. An example of a medieval Arabic name using all these parts in the order of laqab, kunya, ism, nasab, nisba would be Burhan ad-Din Abu Ahmad Muhammad b. Yusuf b. Al-Hasan al-Misri (Bulliet 1979: 10).

The complete name is rarely used in regular writing. Instead, various shorter forms of the name are used. For instance, references to al-Tabarani in *Tadhkira* had the following forms:

1. Abu al-Qasim al-Tabarani: in the records 648, 683, 684, 685, 688, 709, 710, 720, 729, 737, 741, 742, 745, 747, 752, 754, 760, 799, 976, 994.
2. al-Tabarani: in the records 637, 650, 652, 674, 681, 690, 691, 693, 705, 712, 740, 773, 777, 787, 788, 789, 801, 819, 821, 943.
3. Sulayman al-Tabarani: in the record 761.
4. Sulayman b. Ahmad al-Tabarani: in the record 682, 696.

Some names are highly commonly used such as Muhammad, Abdullah, Hasan, and the like. In this case, it would be a daunting task to determine who is who. Which Muhammad, or Abdullah, or Hasan is the one we are after among hundreds of them? Certain methods are used to eliminate impossible options and narrow the search: (1) life times must converge; (2) Father, grandfather, and grand-grandfather names must match; (3) affiliations (geographical, tribal, intellectual) must match; (4) names of the sons or daughters, if mentioned, must match; (5) nicknames, if there is any, must match. These methods are used for each scholar in checking the reliability of connections reported.

The following simple example illustrates this process. Bashshal, a hafiz from layer 10, is reported to have a teacher with the name "Sulayman bin Ahmad (Sulayman son of Ahmad)"—the name and the father name of Tabarani. One might be easily led to

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think that this the same with our scholar because the name and the father name match. However, these are not the same people because (1) the kunya al-Tabarani is not mentioned (note that in the list above his name is never mentioned without his kunya), (2) a scholar from layer 10 does not usually take hadith from a 12th layer scholar, and finally (3) al-Tabarani is listed among his students. Al-Tabarani was the student of Bashshal but not his teacher.

Teachers and Students Mentioned in the Record

Teachers:

(1) Hashim b. Marthad al-Tabarani,
(2) Abu Zur'ah al-Thaqafi,
(3) Ishaq al-DAburi,
(4) Idris al-'Attar,
(5) Bishr b. Musa (637),
(6) Hafs b. Umar Sanjah,
(7) Ali b. Abdilaziz al-Baghawi (650),
(8) Miqdam b. Duwud al-Ru'ayni,
(9) Yahya b Ayyub al-'Allaf,
(10) Abu Abdirrahman al-Nasa'i (564),
(11) Abdullah b. Muhammad b. Sa'id b. Abi Maryam

The majority of these students, nine of them, are non-hafiz (1, 2, 3, 4, 6, 8, 9, 11). Only three of them are huffaz (5, 7, 10). The number following the names of huffaz indicates their code in the HADITHNET dataset, which is not the same as their number in the original source. The non-hafiz teachers are not included in our database because of the exclusive focus of the present study on hafiz scholars. Therefore, connections to the scholars who did not gain reputation as hafiz are not counted for in the network of al-Tabari. The exclusion of the non-huffaz is a limitation of this study, yet, it is necessary to have a scope.

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Students:

(1) Abu Khalifah al-Jumahi (691),
(2) Ibn 'Uqdah (821),
(3) Ahmad b. Muhammad al-Sahhaf,
(4) Abu Bakr b. Marduyah (966),
(5) Abu Umar Muhammad b. al-Husayn al-Bistami,
(6) al-Husayn b. Ahmad b. al-Marzuban,
(7) Abu Bakr b. Abi Ali al-Dhakwani,
(8) Abu al-Fadl Muhammad b. Ahmad al-Jarudi (816),
(9) Abu Nu'aym al-Hafiz (994),
(10) Abu al-Husayn b. Fadishah,
(11) Muhammad b. 'Ubaydillah b. Shahriyar,
(12) Abdurrahman b. Ahmad al-Saffar,
(13) Abu Bakr b. Ridhah

The majority of these students, eight of them, are non-hafiz (3, 5, 6, 7, 10, 11, 12, 13). Only five of them are huffaz (1, 2, 4, 8, 9). The number following the names of huffaz indicates their code in the HADITHNET dataset, which is not the same as their number in the original source. The students who are not recognized as hafiz are not included in the data. Consequently, connections to them will not be counted for in the analysis, another necessary limitation for this study.

Teachers and Students Mentioned outside the Record

Based on the entry under his name in the biographical dictionary, al-Tabarani had 24 connections, 11 to his mentors, and 13 to his students. Among that, he had only eight connections to huffaz, three hafiz teachers and five hafiz students. If I had based my analysis only to the information provided here in the biographical record of al-Tabarani, I would have ended up misconstruing his network because the above list is far from being an exhausted list of teachers and students. As I mentioned earlier, with the purpose of

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avoiding repetition, Dhahabi recorded connections only once, either in the record of teachers or in the record of students.

After a through search for the connections of Abu al-Qasim al-Tabarani, we come to the conclusion that he had 42 teachers and nine students.

Teachers:
1. From layer 9: 637, 648, 650, 652 (4 scholars).
2. From layer 10: 674, 681, 682, 683, 684, 685, 688, 690, 691, 693, 705, 709, 710, 712, 720, 729, 737, 740, 741, 742, 745, 747, 752, 754, 760, 761 (26 scholars).
3. From layer 11: 773, 777, 787, 788, 798, 799, 801, 819; 821 (9 scholars).

Students:
1. From layer 12: 691, 821, 966, 816, 994 (5 scholars).
2. From layer 13: 943, 969, 976 (3 scholars).

One can easily observe that there is a striking difference between the number of teachers and students. This is not so common although in general the number of teachers tends to be higher compared to the number of students. The number of in-layer connections is also unusually high.

This process of search for connections and identifying who is who in the network as well as the reliability checks are repeated for each prominent scholar who is part of the hadith transmission network I analyze. Enormous time and work have been required to construct the network of each scholar in a reliable way. Yet, there still might be a small number of elusive mistakes that I might have missed.

Types of Data

I used the information I gathered from the sources I described above to construct several types of data to use in this study: link data (macro and micro), node data, and

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qualitative data. More clearly, the data that are used during this study can be categorized under five titles: (1) macro-link data, connections between generations; (2) micro-link data: connections between individual scholars; (3) macro-node data: information about layers; (4) micro-node data: information about scholars; (5) qualitative historical data. A brief discussion of these categories is in order.

Macro-link Data: Connections between Generations

The macro-link data provide aggregate measures about connections between layers of hadith-narrators. Hadith narrators carried both the role of student and teacher depending on their age.

I constructed various variables that I will introduce here as well as the notation I used for them. The capital 'L' stands for "layer" a generation of hadith narrators. A layer had student and teacher connections within itself and connections to earlier and later layers. The capital 'S' stands for Student connection, and the capital 'T' stands for teacher connection. (See below in Chapter 6, Tables 6.2, Connections, 6.3, Student connections, and 6.4, Teacher connections.)

Table 4.2: Inter-Layer Connections

Teacher and student connections are distributed in six categories based on (1) direction (whether it is a student tie or a teacher tie), (2) origin and destination (whether it is within the same layer, or to upper or lower layers), and (3) distance (the generation difference between students and teachers). The distance between generations is indicated by "Up1" (ties to an upper/earlier generation), "Up2" (ties to a 2 step earlier generation),

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"Up3" (ties to a 3 step earlier generation). For instance, while connections from layer 4 to layer 4 are considered under the category "In," connections from layer 4 to layer 3 are considered under the category "Up1"; connections from layer 4 to layer 2 are considered "Up2"; connections from layer 4 to layer 1 are considered under "Up3."

Various combinations of these categories are used to construct measures to be operationalized in the research. In-layer connections, as I mentioned earlier, are denoted briefly as "In". Yet, In-layer connections are further divided as "Sin" (student ties within a layer), and as "Tin" (teacher ties within a layer). Upward and downward connections are also further divided depending on whether they are student or teacher ties. "Sup" stands for student ties to upper/earlier layers; "Sdown" stands for student ties to lower/later layers. The same distinction applies to teacher ties. "Tup" stands for teacher ties to upper/earlier layers, "Tdown" stands for teacher ties to lower/later layer. One important note at this point must be made about the numbering of layers. The highest layer in the hadith transmission network is layer 1, the layer of the Prophet, and the lowest layer is the latest generation, in our data set it is layer 26. One should note that the smaller the number the earlier/the upper the layer.

Graph 4.3: Distribution of Inter-layer teacher and student connections

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Another important note about "layer 1". The Prophet is not usually included as a separate layer in the hadith transmission network by the classical authors because he is not a narrator; but the narrative is about him. Dhahabi, the author of the biographical dictionary from which our data are derived, also follows this tradition. Yet, from network

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analysis perspective, this approach may obscure an important piece of information: the links from layer 1 to the Prophet. Since this information is important for our purposes in this research, a new layer therefore is created with the name of "layer 1" to denote the connections to the Prophet.

The first table includes the main matrix in which columns indicate teacher connections and rows indicate student connections between layers. For instance, reading the numbers in the column for the second layer (L2) gives the number of their teachers from the first layer (L1), the layer of the Prophet, from the second layer (L2), the layer of the Companions, which is their own layer, and from the third layer (L3) which is the layer of Successors. This shows that the second layer (L2) had 23 teacher connections to the first layer (L1), the layer of the Prophet, 16 teacher connections to the second layer (L2) which is their own layer, and only 1 teacher connection to the third layer (L2), the layer of Successors.

Similarly, reading the rows gives the number of student connections. For instance, the second layer (L2) had 16 student connections to the second layer (L2), 156 student connections to the third layer (L3), 103 student connections to the fourth layer (L4) and 56 student connections to the fifth layer (L5). In order to simplify the reading of the sociomatrix and to construct measures to compare, two tables are generated about interlayer connections from the first matrix: a table for interlayer teacher connections, and another table for interlayer student connections. (See below in Chapter 6, Tables 6.2, Connections, 6.3, Student connections, and 6.4, Teacher connections.)

The Table 6.4, in Chapter 6 below, provides information about how the teacher connections of a layer are distributed. By looking at this table we can tell the sources

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from which a layer got hadith. It also shows us how dense the connections were between layers. Table 6.3, in Chapter 6 below, is about the aggregate number of student connections between layers. It provides information about the aggregate distribution of student ties for scholars who constitute a layer.

The total sum of these two tables should be the same because they count the same number of relations yet from different vintage points. A connection in the network is reported twice in the data, once as a student connection, and once as a teacher connection, because the same tie is a teacher connection for the student and a student connection for the teacher. For instance, suppose that student A is a student of teacher B. This is a student connection for teacher B, but a teacher connection for student A.

Micro-link data: Connections between Individual Scholars

On the macro level as described above each layer is treated as a case while on the micro level each scholar is treated as a case. The aggregate measures that are described above are produced based on the values of individual hadith narrators which have been directly obtained from the aforementioned classical Arabic sources. The macro-link variables are thus reflections of the sum totals of the values attached to the social actors who constitute the layer under consideration. The same variables that are discussed above in the context of inter-layer connections are also constructed and utilized for the individual level as well. For this consideration, a more refined approach is employed and each scholar is treated as a separate case.

Micro-link data are important especially for the analysis of social prominence that is based on the number of ties individual social actors have. The total number of these

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ties (total) varies for each scholar even though their layer might be the same. Similarly, varied are the total number of student ties (Sties) or teacher ties (Tties) as well their distribution based on distance (Sin, Sup1, Sup2, Sup3, Sup4, Sdown1, Sdown2, Sdown2, Sdown3, Sdown4, and Tin, Tup4, Tup3, Tup2, Tup1, Tdown1, Tdown2, Tdown3, Tdown4). These measures are crucial for detecting the competition within a given layer for students and teachers, the results of which brings about the internal differentiation within each generation.

Macro-node data: Information about Layers

Each layer serves as a node, an aggregate social actor, on the macro level. Data have been gathered about each layer such as the beginning and end date of their period, and the number of scholars within each layer. Similarly, aggregate values about the following aspects have also been collected: regional affiliation, family, school of thought and law they belonged to, birth and death places, birth and death dates, places of residence, and specialization in disciplines.

The data show how concentric networks developed around scholars who carried multiple identities. These concentric networks include generation network, generally referred to as layers (scholars from the same cohort), regional networks (scholars from the same locality such as Damascus, Nishapur, Cairo, Bukhara, and the like), family networks (scholars from the same family), school networks (scholars from the same school of law (Hanafi, Maliki, Shafii, Hanbali, or Shiite) or theology (Ahl al-Hadith, Ash'ari, Maturidi, Mu'tazili, or Shiite)), and specialization networks (hadith scholars who were at the same time involved in the network of jurists (fuqaha), linguists

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(lughawiyyun), philosophers (falasifa), theologians (mutakallimun), reciters of the Koran (Qurra'), or historians (muarrikhun)).

Micro-node data: Information about Individual Scholars

The above-discussed aggregate values are derived from the micro level data about individual scholars. The node information about the individual narrators on the micro level include their common name, the brief name with which they came be known among their colleagues, and the full name consisting of a long string of titles (kunyah, laqab, nisbah) and the names of ancestors for several generations. The father's name is kept as a separate variable because it helps to separate the individual narrators with the same name from each other. On the other hand, it also helps to determine whether the narrator belongs to a prominent family which produced scholars across generations.

Qualitative Historical Data

Since this study is an exercise in historical sociology, not all the data that are available can be quantified. Nor is this necessary. Historical qualitative data are summoned up to elucidate the issues under investigation. For instance, in demonstrating how narrative and law are intricately connected, which is important to understand why so many hadith scholars were also involved in the overlapping network of jurists, a case study is used (See Chapter 3 above).

Reliability and Limitations of the Data

It has been a daunting task to reconstruct the hadith transmission network. The information is scattered in classical historical sources. Most troublesome was the

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question of separating scholars with identical names, father names, and even grandfather names. Since scholars are usually briefly referred to by their various types of short names, *ism, kunya, nisba,* or *laqab,* misidentification and confusion are bound to rise in determining who the scholars really are. These incidents of misidentification, if there is still any left, need to be eliminated when they are detected, which is an eternal process.

I tried to overcome this problem by using several techniques. In the case of encountering several scholars with the same name, the first thing to do was to look at their ancestor (father, grandfather, grand grandfathers' names). In case this did not help, the next step was to check the region and the tribe they belonged to. In case this did not help either, I checked the layer they belonged to as well as birth and death dates.

Death dates are more easily available than birth dates. Classical Islamic historians put curiously more emphasis on death dates than birth dates due to reasons that are not so clear to a modern reader. Perhaps, this is because the early years of a scholar's life, a period usually spend in obscurity as a child and student, were not as important as his later years. Dhahabi, following the custom of his colleagues, reports death dates for a great majority of the narrators. This is less so when it comes to birth dates. Additional classical sources have also been used to obtain information about these which Dhahabi neglected[9]. This attempt greatly increased the number of scholars whose birth and death dates are

[9] The following sources were consulted to complement the data from *Tadhkirah al-Huffaz.* (1) al-Dhahabi, *Siyar 'Alam al-Nubala,* (2) al-Dhahabi, *Tarikh al-Islam,* (3) al-Mizzi, *Tahzib al-Kamal fi Asma al-Rijal,* (4) al-Zirikli, *al-A'lam,* (5) al-Safadi, *al-Wafi bi al-Wafayat,* (6) Ibn al-Khallikan, *Wafayat al-A'yan wa Anba'i Ahl al-Zaman,* (7) Kahhalah, *Mu'jam al-Muallifin,* (8) al-Sam'ani, *al-Ansab,* (9) Ibn Hajar, *Lisan al-Mizan,* (10)Ibn Hajar, *Taqrib al-Tahzib,* (11) Ibn abi Hatim al-Razi, *Kitab al-Jarh wa al-Ta'dil,* (12) al-Bakri, *Mu'jam Musta'jam min Asma al-Bilad wa al-Mawadi',* (13) Ibn Sa'd, *al-Tabaqat al-Kubra,* (14) Ibn Manzur, *Mukhtasar Tarikh Dimashq,* (15) al-Kattani, *al-Risalah al-Mustatrafah li Bayan Mashur Kutub al-Sunnah al-Musharrafah,* (16) Ibn al-Faradi, *Tarikh Ulama' al-Andalus,* (17) al-Humaydi, *Jayzat al-Muqtabis,* (18) al-Dabbi, *Bughyat al-Multamis,* (19) Ibn Bashkuwal, *al-Silah,* (20) Ibn

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available. Yet still some death and especially birth dates are missing for a minute and tolerable minority of scholars.

Exclusive focus only on the connections between the huffaz is another limitation of this study. The non-hafiz scholars and the connections to them are not included in the analysis because this would expand the data. Neither collecting this much data nor analyzing them would be feasible within the given limits of a dissertation. Yet the network configuration of non-hafiz scholars would have provided a contrast case.

Tests over 26 Generations

Three methods are used to check the reliability of the data. First, the data about each layer are contrasted against the data from other layers for the purpose of detecting if there was any bias in the data or the way information was selectively collected by the authors of the biographical dictionaries. Second, the data obtained from Dhahabi's work are contrasted with the data obtained from Suyuti's work. As I mentioned earlier, the information from layer 22 to layer 26 is gathered from Suyuti's biographical dictionary. I assume that if there had been any bias in the data or in the way the authors selectively recorded the information, it would have been captured in the contrast between the network of layers or between different sources.

Using the first test, I looked at the values for different layers and contrasted them. I did not observe any abrupt change in the data about different layers. Using the second test, I looked at the data from Dhahabi's work and the data from Suyuti's work; I did not

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Hibban, *Kitab al-Thiqat.* This is far from being a comprehensive list; there are many other sources that were also consulted occasionally during the study.

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see any abrupt change or a striking inconsistency in the reported values between the two sources either. Therefore we can safely assume that our data is not biased.

Conclusion

The historical network data poses new questions and opens up new possibilities. The main question is testing the reliability, which is commonly shared by the non-historical network data as well. Neither one can be considered more reliable than the other; each type of data collection requires tedious efforts to increase reliability. In particular, to assume at the outset that historical sources are less reliable than interviews would be an oversimplification of the issue. The social network data that are collected through interviews are generally used to construct a synchronic, and crossectional social network. In contrast, the social network data that are gathered from historical sources can be used for the construal of the historical networks through a span of time or solely in one period. The structure of the data about single period reflects variation compared to the data about a long period of time. Only do the latter type of data make possible the analysis of the social structures over time.

The data used in this study is not but a tiny sample and less than the tip of the iceberg in vast oceans of data available on the networks of scholars in Islamic civilization. The present tools of social network analysis, especially the network analysis software packages, are far below the level of handling such mammoth data. Moreover, given the various kinds of sources, it is not easy to do justice to the data that require an enormous amount of time and energy to sift through and to analyze. The larger picture still remains incomplete.

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Social network analysis methods offer a fresh look at the data that appeared in limited use in the hands of conventional historians who operated with traditional concepts. Frye, the historian who prepared a facsimile edition of the above mentioned works about the history of Nishapur, wrote: "Most of the city or local chronicles in Arabic or Persian are rather tedious catalogues of prominent inhabitants with emphasis on their pious deeds, pronouncements, or writings." Note that he completely disregards the social network dimension of the data he is dealing with. He continues, "As such, they provide valuable information for the specialist on biography, but for the general historian of the Islamic world their worth seems small." He would no doubt think otherwise, had he considered the possibilities about structural analysis opening up to researchers who can approach the classical material from the point of view of social networks. He concludes, "It is not surprising, then, that many local chronicles remain unpublished" (Frye 1965: 7).

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Table 4.1

Comparative layers from Dhahabi's *Tadhkirah* and Suyuti's *Tabaqat*

layer	Dhahabi Population	Dhahabi No	Suyuti Population	Suyuti No	Variation
1	23	1-23	23	1-23	0
2	42	24-65	40	24-63	2
3	30	66-95	30	64-93	0
4	58	96-153	55	94-148	3
5	78	154-231	71	149-219	7
6	81	232-312	81	220-300	0
7	106	313-418	99	301-399	7
8	130	419-548	127	400-526	3
9	107	549-655	105	527-631	2
10	116	656-771	112	632-742	4
11	77	772-848	75	743-817	2
12	79	849-927	78	818-895	1
13	48 + 26=74	928-1001	71	896-966	3
14	31	1002-1032	31	967-997	0
15	46	1033-1078	46	998-1042	0
16	18	1079-1096	18	1043-1060	0
17	25	1097-1121	25	1061-1084	0
18	26	1222-1147	27	1085-1111	1
19	12	1148-1159	12	1112-1123	0
20	10	1160-1169	10	1124-1133	0
21	7	1170-1176	23	1134-1156	15
22			11	1157-1167	
23			9	1168-1176	
24			11	1177-1190	

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Table 4. 2:
Inter-layer connections

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17	L18	L19	L20	L21	sum
L0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
L1	16	156	103	56	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	332
L2	1	5	33	115	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	161
L3	0	0	1	132	115	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	250
L4	0	1	1	22	274	264	41	1	0	0	0	0	0	0	0	0	0	0	0	0	0	604
L5	0	0	0	6	63	174	409	126	1	1	0	3	0	0	0	0	0	0	0	0	0	783
L6	0	0	0	3	20	18	41	599	52	3	0	0	0	0	0	0	0	0	0	0	0	736
L7	0	0	0	0	2	6	15	196	553	39	0	1	0	0	0	0	0	0	0	0	0	812
L8	0	0	0	0	0	2	85	29	288	608	80	3	1	0	0	0	0	0	0	0	0	1096
L9	0	0	0	0	0	0	27	5	46	206	229	42	2	0	1	0	0	0	0	0	0	558
L10	0	0	0	0	0	0	1	2	15	31	91	361	21	1	0	0	0	0	0	0	0	523
L11	0	0	0	0	0	0	0	0	0	10	3	134	57	2	0	0	0	0	0	0	0	206
L12	0	0	0	0	0	0	0	0	0	3	5	31	143	4	1	1	0	0	0	0	0	188
L13	0	0	0	0	0	0	0	0	0	0	5	6	69	63	13	4	3	1	0	0	0	164
L14	0	0	0	0	0	0	0	0	0	0	0	0	2	16	58	2	0	0	0	0	0	78
L15	0	0	0	0	0	0	0	0	0	0	0	0	1	5	44	42	11	0	0	0	0	103
L16	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	16	29	4	1	0	0	55
L17	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	10	51	4	1	0	68
L18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	18	3	11	2	35
L19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	9	2	17
L20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	2	4	12
L21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
sum	40	162	138	334	481	466	619	958	956	901	413	581	297	92	121	66	55	79	14	23	8	6804

Table 4. 2: Inter-layer connections
(Columns indicate the total number of teachers for a layer. Rows indicate the total numbers of students for a layer.)

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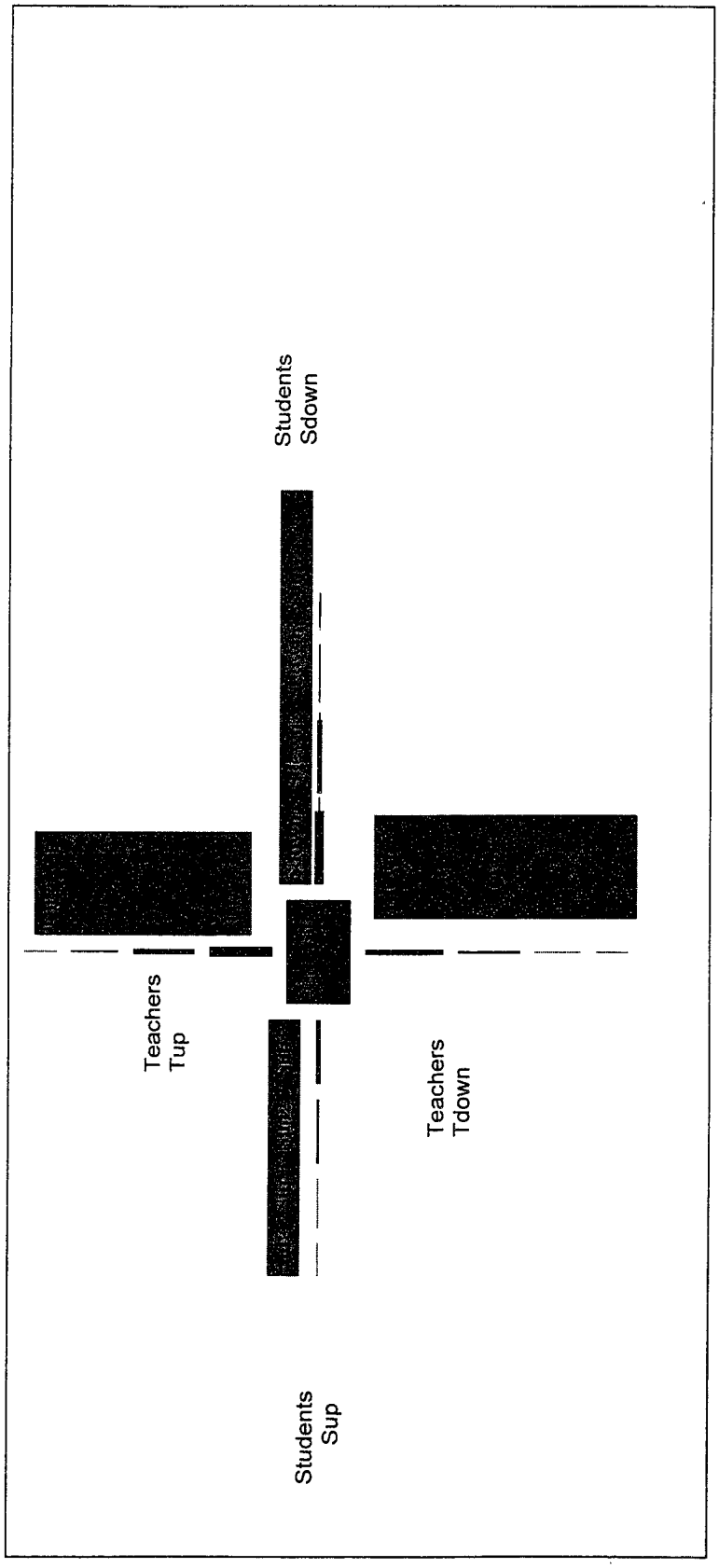
Graph 4.3: Distribution of inter-layer teacher and student connections*



*Vertical arrow shows the teacher-ties. Horizontal arrow shows the student ties. The box at the center indicates the in-layer teacher and student ties. Arrows are broken to show the distance. Thickness of the line shows the volume of the relations between layers.

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Chapter 5

Methods

FROM SYNCHRONIC TO DIACHRONIC METHODS

This chapter elucidates the methods used in this study to analyze cross-temporal structures affected by the interaction between social and discursive relations through time. The gap between synchronic and diachronic network analysis, in addition to the gap between literary and social structural analysis, poses a methodological problem this study has to overcome. To this end, social network and discourse analysis methods are combined with those of time series. The interaction between discursive and social patterns is better captured on the level of metalanguage, namely in the patterns of reported speech, instead of object language.

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"Very few linguists realize that the need to take into account of the passage of time fives rise to special problems in linguistics and forces us to choose between two radically different approaches," writes Saussure (Saussure 1994: 79). The claim applies to sociologists today as well. The major methodological problems this study faces come from the embryonic state of diachronic analytical tools in the field of social network studies. Saussure, as I explained earlier, suggested a diachronic and a synchronic structural inquiry.

Yet, in social sciences, the query for structures has remained synchronic in focus, with the exception of econometrics, thereby creating a gap between diachronic and synchronic analysis of structures. A cross-temporal structure is produced by the enduring patterns of diachronic social relations between social actors who are differentiated from each other by virtue of time. Sociological research has concentrated for the most part on the structures produced by the enduring relations between social actors who are differentiated from each other and, thus, stratified into different groups, by virtue of economic, social and cultural attributes.

However, structural analysis of social relations cannot reach its full potential without developing methods to explore cross-temporal structures. Any analysis that ignores the passage of time and the temporal constrains therefrom produces hypothetical and inauthentic images of social and discursive process.

> When this is taken into account, the language is no longer free from constraints, because the passage of time allows social forces to be brought to bear upon it. One is left with a principle of continuity which precludes freedom of choice. At the same time continuity implies change" (Saussure 1994: 78).

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White's work on the structure of opportunity, Mullin's work on academic networks, and Zuckerman's work in the *Scientific Elite* are among the few examples of genuine social network studies on cross-temporal structures, even though each author stresses this aspect to varying degrees. White analyzes the structure of opportunity in large organizations as chains of upward moves sequentially ordered in time. Zuckerman and Mullins analyze the connections between layers of scholars from different generations. The former employs the connections between mentors and apprentices from different time periods to explain the structure of elite formation and perpetuation. The latter uses the ties between professors and graduate students in explaining the formation of new theory groups in science, particularly sociology.

Yet, neither author suggests new methods for cross-temporal analysis. In the final chapter of this study, I will show how one can analyze the data of Zuckerman and Mullins from an alternative perspective. This will not only show the advantage of methods I use here, but also provide additional evidence for the hypothesis of this study. Besides White's aforementioned methodological contributions to cross-temporal research, which have yet to find a common application, Abbott's work is also an important contribution to cross-temporal analysis.

Even the work of some historical sociologists, who employ network analysis methods, focus on the connections between social actors from the same period or they treat social actors from different period as if they were from the same period. They, therefore, remain inherently the same with the studies about the present day social networks. Consequently, although the historical sociologists study historical networks

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and the sociologists who are not interested in history concentrate on the present day networks, their questions and, thus, the methods are synchronic in nature. In these studies, the social actors whose networks are analyzed are not differentiated from each other by time; instead, they are embedded in the same time period. Studies about cross-temporal comparisons are no exception to this observation either. They compare the results obtained from synchronic analysis of different time periods.

The Gap between Cross-temporal and Cros-sectional Research

In contrast, in this study, I search for cross-temporal, or diachronic, structures. For this purpose, given the concentration of current network analysis methods on cross-sectional, or synchronic, structures, I need to retool myself. My purpose is to show how cross-temporal relations, as opposed to synchronic relations, produce authority. To this end, the available methods of social network analysis are modified. The methods used on the macro level are different from the methods used on the micro level. On the macro level, I used time series analysis to analyze the connections between layers. A layer is an aggregate social actor differentiated from the rest of the organization by virtue of their social position in a cross-temporal network. On the micro level, however, I modified the current prominence analysis methods so as to account for cross-temporal social relations.

This section briefly outlines the methods employed in answering the questions posed in the previous chapters. This study aims first to uncover the social structure of relations in the scholarly community by employing social networks and times series methods. The next step is to unveil the linguistic structure of reported speech in the academic community by employing sociolinguistic and socionarrative methods. The

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third and the final step is to analyze the interplay between social and linguistic structures already uncovered by the previous analyses.

From a relational perspective, connections of scholars to each other are used as the unit of analysis. Social relations and patterns among them outlive social actors overtime thereby creating an element of continuity in the social structure. Time series analysis is the most commonly used analytical device to capture and analyze enduring systematic patterns and trends. On the macro level, the unit of analysis is the connection between layers[1], of scholars to each other, while on the micro level it is the connection between individual scholars. Hypotheses concerning the systematic patterns in these connections will be tested by various analytical procedures. Perceived persistent patterns in the relations of scholars—which produce structures, are used, first, to demonstrate how the prominent group is set apart from the rest of the scholarly community, and, second, how they, the prominent, differentiate internally.

Enduring inequalities on both levels, prominent scholars *vis a vis* the rest and prominent scholars *vis a vis* each other, are reproduced by the successive layers of scholars over centuries owing to some social and linguistic processes. Prominent scholars have a particular position in scholarly network control production, reproduction and dissemination of narrative despite the minuscule size of their group. Furthermore, the group of huffaz, which is a tiny group knitted by teacher and student ties over a

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millennium, remained as the scope of strong influence by an even smaller group. In this connection, the following effects on competition for prominence will be named: the effect of inter-layer brokerage (ILB effect), and the effect of levels of reported speech (LRS effect).

The first dynamic of competition among the prominent group scholars on which authority formation in academia partially depends is inter-layer brokerage. This hypothesis is will be tested by time series analysis. Prominent scholars spend their time, when they are young, as students with prominent teachers from previous generations, and, when they are mature, as teachers with prominent students from subsequent generations. They avoid academic ties to their own layer. But why? Why do scholars avoid citing their own colleagues from the same layer although they might otherwise be close friends? The answer lies in the way sociolinguistic and socionarrative processes operate, which is the next step of the analysis.

Scholars rely heavily on reported speech and narrative without even noticing how the linguistic structures shape, or at least inform, their social network. This is true even if one does not accept the assertion that science(s) is a narrative (Dalton, Schank), although with a distinct mode. Academic life would be impossible without reported speech and narrative. Academic disciplines, in particular history and social and human sciences, rely to varying degrees on reported speech and narrative. Each discipline is founded on a

[1] Layer (*tabaqa* pl. *tabaqat*), a commonly used key term in the intellectual history of Islamic civilization, is a particular type of academic community, organizationally analogous to an invisible college, differentiated by their affiliation to a generation of scholars in an academic discipline. There are layers of jurists, linguists, sufis, and the like. The network position of a scholar determines his layer; his tie to his eldest teacher or the one who belongs to the earliest layer, is used as a criterion. Members of a layer do not produce a formal community or association, in the modern sense, where they register. The group identity of belonging to a particular layer, or scholarly generation, is generated through an awareness of the

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particular mode of narrative distinct from those of others. Scholars affiliated with a discipline master the mode of narrative of their discipline. This gains them an identity in contradistinction to the scholars from other disciplines, which are based on different modes of narrative. Sociolinguistic dynamics not only affect the interdisciplinary networks but also networks within a discipline *via* internal differentiation.

There is a systematic pattern in the usage of reported speech and narrative among scholars. This apparently chaotic system revolves around a simple rule: reduce levels of reported speech as much as you can. Speak with object language (eyewitness narrative) if you can, which is the most prestigious position. If not, cite the original source, the one who speaks object language, since that is the next prestigious position. Otherwise, cite a secondary source at the cost of risking your prestige. No matter how accurate the citation might be, if the levels of reported speech are improper, the prestige and the authority of the speaker are bound to be questioned. In brief, the more the levels of reported speech a social tie saves, the better the tie is. A system of reported speech thus shapes, though unintentionally and implicitly, the configuration of the academic networks.

Bibliometrics and Co-citation Research

Bibliometrics, information sciences, co-citation, and communication research, all newly emerging fields, deal with scholarly communication employing a wide range of methods. The methods used by these research families are possible sources of inspiration to the present study because the subject matter they study resembles that under

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commonly shared generational position in the intellectual network.

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investigation here: first, it is inherently cross-temporal, second, it revolves around reported speech, third, it addresses social networks through time.

However, this avenue of research has to overcome a tendency to conflate the diachronic to the synchronic and the literary to the social. Likewise, the underlying traditional approach to language--as merely a means of communication, that characterizes these research fields--needs revision in light of recent developments in our understanding of language, which I discussed earlier.

Borgman, editor of the work *Scholarly Communication and Bibliometrics,* which brought together scholars from a wide range of disciplines, defines these fields as follows: "We consider scholarly communication to be the study of how scholars in any field use and disseminate information through formal and informal channels and bibliometrics to be the application of mathematics and statistical methods to books and other media of communications" (Borgman 1990: 10). These fields "share essentially the same repertoire of methods: surveys, experiments, case studies, content analysis, and historical analyses" (Borgman 1990: 8).

I believe these fields would greatly benefit from interaction with the recent research on reported speech especially given the fact that they study three 'variables': (1) *producers* of written communication, individual or aggregate authors, (2) *artifacts* of communication, that is the formal product such as reading other documents, translating their ideas into their own terms, and talking with others, (3) *concepts* communication which has two types: (a) studies that use the authors' own terms, (b) studies that focus on the purpose or motivation of a citation (Borgman 1990: 16). These variables bear upon reflexive speech and are studied extensively by linguists.

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Cohorts and Generations Research

Another field that is closely related in its methods and analytical concerns to the one here is cohorts and generations research. This family of research presents a great diversity in its methods and research questions. Common to all, however, is the emphasis on the relevance of time in the explanation of social processes. Quantitative, qualitative and network analysis methods are used to explore macro and micro level processes in the relations between or within generations (Becker 1992).

There is no unanimity in the way cohort and generation, which are two unifying concepts of this research tradition, are defined. A representative writes, a cohort is "the aggregate of individuals within some population definition who experience the same event within the same time interval" (Ryder 1965: 843-861). Another representative perceives a generation as

> a grouping of a number of cohorts characterized by a specific historical setting and common characteristics on an individual level (biographical characteristics, value orientation and behavioral patterns) and a system level (size, generational culture and generational organizations) (Becker 1992: 20).

White offers an alternative definition. "A generation is a joint interpretive construction which insists upon and builds among tangible cohorts in defining a style recognized from outside as well as from inside itself" (White 1992: 31).

I introduce an alternative, yet similar, methodological construction, the concept of 'layer', which is inspired by the way medieval historians originally categorized the cohorts. A layer, as operationalized here, is a cluster/block of structurally equivalent

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social actors who reflect similar behavioral patterns. This similarity manifests itself in the way social actors establish network connections.

The advantage of employing the concept of layer as opposed to using cohort or generations comes from the way its boundaries are demarcated by network connections. The concepts of generation or cohort are defined by reference to a multitude of cultural and social features whereas the concept of layer is defined merely by reference to the position of a group in a cross-temporal network structure. Each layer acts as a building block of the network and derives its identity exclusively from its position in the network. Without reference to the network, and interrelations of the group within it, it is impossible to conceive a layer. Another advantage afforded by using the concept of layer is a sophisticated and dynamic system of periodization based on cross-temporal network dynamics. The parallels, nevertheless, between the findings of this research and those of cohorts and generations research will become clear in the remainder of this work.

Below, I will discuss these issues in more detail. In the remainder of this chapter, first, I will discuss the method of periodization used in this study, then, I will briefly introduce the methods to be used in the next two chapters in answering the research questions this study tackles.

Periodization and the Concept of Layer

Tabaqah (pl. tabaqat), what has come to be translated as 'layer,' 'stratum,' or 'class,' is a useful innovation of historians of medieval Islam to group the figures they studied into categories. Explicit in the concept of stratum is the internal differentiation and stratification of scholars. This stratification is two-fold: stratification by virtue of

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human capital such as competence, knowledge, and academic production; and stratification by virtue of social capital such as proximity to the original source, the Prophet. Yet, these two types of stratification hardly exist separately.

The first type of stratification produced the scholarly hierarchy that we described earlier in Chapter 3, namely, differentiation of scholars into categories of *shaykh al-Islam, hafiz, hujjah, muhaddith, musnid, and talib*. The latter type of stratification is produced by social or network time based on differentiation of scholars into layers. More concretely, the scholarly community is differentiated internally by virtue of their earliest connections.

In the culture of hadith narrators, there is a normative side to the high regard paid to the earlier layer that can be traced to the teachings of the Prophet. Narrative has it that Prophet Muhammad said: "The best of generations is my generation, then, the one that follows, then, the one that follows." Those who were closer to the time of the Prophet had a better chance to obtain access to his true teachings more easily.

Both types of stratification, one from competence, the other from time, are employed in this study. The analysis concentrates on the internal stratification of the stratum of huffaz by virtue of time, that is the layers of huffaz, and the interrelations between them over time.

In a given period time, only a limited number of strata exist. How can we determine how many strata exist in a given time? The answer depends on the way boundaries of layers are demarcated. In the time of the Prophet, there were only two layers, the Prophet, the first stratum, and his Companions, the second stratum. Yet, it is possible to further divide the stratum of the Companions into "the old," "the middle

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aged," and the "the young." The same applies to the Successors. By definition a Successor is the one who had a connection to a Companion. Again, by using the birth and death dates as criteria, it is possible to divide them into more refined categories as the old, the middle aged, and the young.

Dhahabi divides the network of hadith transmitters into 70 layers in his grand work, *History of Islam,* whereas he divided the same period into 21 layers in the *Biographical Dictionary of Huffaz.* Likewise, in the latter work, he treats the Companions as one stratum while dividing the stratum of Successors into three categories, the old, the middle aged, and the young. Similarly, the stratum of the Successors of Successor is also divided into three sub-layers following the same logic, the old, the middle aged, and the young.

Turning back to the above question about how many layers exist together in a given time, in the light of the above explanations, it can be said that two main strata coexist in any give time. Yet, it is possible to further divide each stratum into sub-strata by virtue of their location in the network, which is indicated by the proxy of birth and death dates, or simply age.

We can conclude that Dhahabi, and following him Suyuti, divided each main stratum into three sub-strata, then the answer for the above question follows. In our data, the adjacent six layers coexist in a given time, except the periods in the beginning and the end of the network. The boundaries, however, are not drawn so clearly.

Coexistence in a given time should not be confused with the network scope (maximum reachable areas of the network by a layer) of a stratum. As we will see below, empirical analysis of the data demonstrates that the network scope of a stratum expands

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towards four earlier and four subsequent layers, the total being nine including the layer under investigation. However, the connections usually occur among five of the strata that coexist in a given time. In their early age, when they are students, their layer is connected to three earlier layers. In contrast, when they get aged and become teachers, their layer become connected to the three subsequent layers from which they recruit students.

For instance, the network scope of the tenth layer expands from layer 6 to layer 14. This does not mean layer 6 to 14 coexisted in a time. Layers 9-6 are teachers of layer 10; and layers 11-14 are students of layer 10. While the new layers of students are born, the layers of teachers wane. That is why, for a student from layer 14, the earliest possible connection is to teachers from layer 10.

Yet, we have to overlay on this map (the network operation of layer 10), the concurrent activities of the adjacent and coexisting strata, which have their own network scope of teacher and students. These network scopes overlap, but only incompletely, because each new stratum occupies a newly added time period.

A new stratum cannot rise without the demise of an old one. The next and the oldest stratum or the ones with the shortest path to the Prophet fill the vacancy from the demising stratum. The vacancy created by this change, which an upward movement, is filled by subsequent generations similar to a chain of events.

Demise of a stratum brings about extended chains of narrative for the students because the ones who replaced them would not have chains as short. Hence, even though there is a new stratum of teachers, which replaces the demised stratum, the opportunities

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for the young layers become limited with respect to connections. This constraint determines their position in the temporal hierarchy in the network.

Paradoxically, from the perspective of the emerging strata, the demise of an earlier stratum brings constraints and offers opportunities. On the one hand, it makes possible the upward mobility of the next stratum and the rise of a new stratum to fill the vacancies in the temporal hierarchy of the system. Yet, on the other hand, the chance of establishing connections to an earlier layer, thus higher in social status and honor, also demises with the demise of a stratum. Consequently, each stratum is inevitably anchored where it is in the social structure by the web of its network connections.

The same principle prevails on the micro level as well. As I explained earlier, students search for teachers with the shortest chains. The relative measure of the length of the chain of a mentor is inversely related to his authority. With the existence of a mentor with a shorter chain of narrative, a scholar with a longer chain has no chance of attracting promising students. A young scholar, therefore, has to wait for decades until his chain of authorities become the shortest before he can teach. This becomes possible with the death of his own teacher and other mentors who are structurally equal to his teacher.

Even if he wants to recruit students, he will not be able to attract any. Nor would this be considered moral and appropriate in the culture of hadith narrators. In his book on the methodology of hadith narration, *al-Muqiza,* Dhahabi reiterates this principle and warns his students who are the future teachers not to narrate hadith in the existence of another teacher with a shorter chain.

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> Part of the moral code (al-adab) scholars have to abide is to refrain from narrating hadith in the existence of someone else who is more qualified than him by virtue of his age and expertise. Likewise, he should not relate any narrative that someone else narrates through a shorter chain of authorities. Also, he should not confuse the beginners; in contrast, he should guide them to the most important knowledge. Religion is but sincerity (Dhahabi 1991: 66).

This would be considered deceiving students and not acting in their best interest. An honest mentor must refer a student who mistakenly comes to study under him to the one who has something better to offer, namely narrative transmitted through a shorter chain. Failure to comply with these procedures would be considered immoral by one's colleagues and eventually destroys the future of the students. A good-hearted mentor is expected not to block the avenues of opportunity for his students for his own benefit.

A scholar has to wait until his chains becomes the shortest available for the students to turn to him; otherwise, students will not apply to him, nor is he supposed to teach them for the reasons I explained above. He can become a mentor by filling the vacancy created by the death of a scholar with the shortest chain. This is a structural constraint none has control over.

Inter-layer relations are thus bloody. New layers have to force themselves into existence by conquering social space from the demising ones. Without death they will never allow the new layers to take their place. This is the structure of relations in a system that "evolves by its own logic, neither controlled by putative central authorities nor amenable to manipulation by its members" (White 1970: 317). Thus, "crucial to the rise of a generation is enough space being afforded them by predecessor cohorts, to

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opportunity not just in theory but in positions both tangible and explicit" (White 1992: 44).

The concept of temporal stratification serves another methodological concern as well, namely, periodization of the lengthy history of a social network through time. Rise and demise of each layer demarcates the beginning and the end of a period. Network connections rather than simple chronological time define these periods. Another feature of this method of periodization is that it allows overlaying several periods in a given chronological time. The periods for adjacent layers overlap to varying degrees. More concretely, the periods of coexisting layers, six at a time as I explained above, intersect at a certain calendar time.

Each stratum corresponds to a time period. Hence there are 26 time periods in our network. These periods are not necessarily commensurate with each other in terms of calendar year because their borders are determined by network connections of their members to previous or subsequent strata. When the first connection is by a stratum, its period begins. The establishment of such a connection may be an indication of the demise of a previous stratum because, as I explained earlier, normally students would not seek after teacher from a later stratum in the existence of an earlier one. Likewise, the life of a stratum ends with the last connection to its members. Death dates can be used as a proxy in place of the last connection because usually scholars in the middle ages did not retire from teaching until their life ended. Birth dates might also be used to determine the beginning of the lifetime of a layer. In this connection, it should be taken into account that there is a period in the early life of students during which they are not academically

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active. Bulliet demonstrated that there is an 'age structure' in medieval Islamic education.

The periodization that utilizes 'network time' has advantages over periodization based on calendar time. It helps better capture the cross-temporal structures that exist in a social network through time. For instance, without using this method of periodization, I would not be able to detect the pattern in the in-layer and out-layer connections that I use to explain authority formation.

Besides, the two methods are not mutually exclusive. I oscillate between calendar and network time depending on my interest at a given analysis. The two methods, therefore, should compliment each other rather than becoming mutually exclusive alternatives.

In defining the periods to be used in time series analysis, I relied on network time and employed the life times of the strata to demarcate the borders of the periods. Consequently, there are 26 periods, beginning with the period in which the Prophet lived, and ending with the period of Suyuti.

Synchronic and Diachronic Structures

It must have become clear from the above account that there are structural differences between crossectional and cross-temporal or time-stratified networks. I shall nevertheless expose these differences in clear terms. This is needed because currently the focus of social network analysis is on crossectional networks. However, as mentioned earlier, this study uses time series social network data because the hadith transmission network is a time-stratified network covering a wide time range from 610 to 1505, and

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consisting of 26 layers. A time-stratified network is a multiple crossectional network that are differentiated from each by the different, yet variably overlapping, time locations they invade. Each crossectional network is called a layer or a temporal stratum.

The focus of the present work is on the interrelations between networks through time. This will show that the crux of the matter in social network analysis should be searched in the inter-network relations between networks through time as opposed to the relations within a network in a given time period. What is in between tells us more than what is within. As to following chapters (Chapters 7 and 8) will demonstrate, the ratio of the connections within a stratum is insignificant compared to the inter-strata relations. Yet, up until now, crossectional networks have been the main, if not exclusive, focus of social network analysis. Mullins, a student of academic networks in modern academia, testifies for me.

> The normal stage [of a discipline] is characterized by a low degree of organization both within the literature and within the social relationships. The literature in a normal-stage area (e.g. small groups research before 1945) is produced by people from scattered institutions, one or two per institution. Few teacher-student relations are visible in the area, and—more important—no groups of students are being formed (Mullins 1973: 21).

Mullins would have captured the core of the activity if he concentrated on the relations between layers of scholars—which he instinctually does in the latter parts of his work. Then he would be able to explain why prominent peers, as teacher and students, avoid each other although they might otherwise be close friends. I shall return to this issue in the final chapter.

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This chapter aims to delineate the structure of inter-layer relations in a time stratified network to pave the ground for the upcoming analysis in the following chapters. Inter-relations between layers on the macro (layer to layer relations) and micro (individual to individual) levels will be the focus of the next two chapters. Analysis of the network of a layer and its relations must take into consideration the network scope of a layer in the global structure of a network of multiple layers. There is a limit to the network scope of a layer, the boundaries of which are drawn by the lifetime of the social actors who constitute it. Nevertheless, these boundaries of a layer overlap to varying degrees with those of others, allowing inter-layer connections. Prior to any analysis of the network of a layer, we need to know whom to include in their network domain, which means breaking down the global network based on the boundaries of the network domain of the layer under consideration.

How far can Layers Extend their Network Domains?

In a crossectional social network in which all the actors live in the same time period, stratification is not based on time, and consequently everyone is reachable by everyone else without time constraint. In other words, in crossectional networks, stratification and differentiation are outcomes of features and processes other than time, such as wealth and status. In contrast, this is not true in a time-stratified network. In a time-stratified network, only the social actors whose lifetimes converge are reachable by each other. On the other hand, the relationship between two actors becomes impossible if their lifetimes do not overlap, although they are part of the same network. This is a major point any study about time stratified networks must take into account. Otherwise, we

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might end up searching for direct connections between people who lived in different times.

This is true for aggregate actors, such as groups, generations or layers as it is true for individuals. As micro level analysis must take into consideration the historical possibility of connections between individuals, macro level analysis should take into consideration the historical possibility of connections between aggregate social actors. Consequently, prior to any analysis, we need to determine the network borders of maximum reachability for each layer in the hadith transmission network, which consists of 26 layers.

Table 5.1: Maximum Reachability among Layers (layer names)

By looking at the data, it can be noticed that the reachability of layer 1, which is the generation of the Prophet is limited to itself and to the subsequent layer, the layer of Companions. As for the Companions, layer 2, their scope of reachability included the generation of the Prophet, their own layer, as well as three subsequent layers. Layer 3 included two early layers, namely layer 1 and 2, as well as four subsequent layers. For layer 4, it consisted of four earlier and four subsequent layers in addition to their own layer. This becomes a pattern beginning at layer 4 until layer 23: all layers could reach four earlier and four later layers. However, since our data ends by layer 26, beginning with layer 23 we do not have information about the connections to later layers.

In Chapter 3, I used Graph 3.4 to provide a more detailed description about the layers that can reach each other. The graph illustrates the problem of reachability between

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layers due to time constraints. Each layer is placed on the timeline with gradual moves towards the present.

Layers occupy a time period which converge with the time period occupied by several other earlier and later layers. In a way, they share the same period of time. However, the convergence can not be complete, as illustrated by the above graph; it must be partial, otherwise, they cannot be treated as separate layers. Some layers rise while others demise. A given date has thus a different meaning to each one individually depending on the point they are at in their life journey. A birth date for one might be the death date for the others. Likewise, when one is young the other might be old. A close look at the dates of appearance and disappearance of layers on the scene of history will put the issue in its historical context. I provided the dates for the times of rise and demise for each layer as well as the duration of the lifetime (See Figure 3.3 above, Longevity of layers).

The feature of networks through time just outlined above is highly important for the purposes of network analysis, especially for social density analysis. Table 6.11 below illustrates best what happens if the scope of reachability is not taken into account. (See below, Table 6.11, Hypothetical network density without time constraint).

The types of network analyses, such as prominence analysis, that require the use of all possible connections must take the role of time into consideration in a time-stratified network. Because of the difference between crossectional and time stratified networks, MR (total number of agents in the maximum reach) must replace N (total number of social actors in the network) in the computation of the total possible connections within a network.

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$$MR_n = L_n + (L_n + 4) + (L_n - 4)$$

Table 6.12 below demonstrates the possible network density based on a calculation that takes MR into account. (The results about the social density analysis, presented in Table 6.12, are based on these figures.) Maximum-reach (MR) does not merely demonstrate the network borders of scholars from a layer but it also serves a vital role in obtaining relative scores of prominence in the network. In a crossectional network, everyone is reachable by everyone else and comparable to him or her with respect to network activity. However, in a time stratified network, only those who are in the same network domain are comparable. Otherwise, we might end up comparing a Companion with a tenth century scholar. More concretely, relative local social prominence of scholars can only be obtained by comparing their network activity with those of their peers from the same layer.

Local prominence measure is obtained by dividing the maximum possible number of connections with the actual number of connections. In the hadith transmission network, the maximum number of connections is equal to the number of scholars within the maximum reach of a scholar, which is the sum of the number of scholars in the same layer, as well as four earlier, and four successive layers.

A network through time, such as the hadith transmission network, is not a single network; rather it is composed of successive networks, where each is gradually placed down in the ladder of history, yet knitted with their predecessors and successors through social connections. Analysis of networks through time, especially that of macro level, is

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thus an inter-network analysis, differentiated from each other by the chronological time slot in which destiny places them. In brief, from a macro level perspective, as the above exploration of maximum reach documented, a time-stratified network is a network of networks.

Macro-level Inter-layer Brokerage

Time series analysis methods will be used on the macro level to analyze the structures over time using the data on hadith transmission network. It is the most commonly used method to detect and analyze the relatively persistent patterns, along with seasonal and non-seasonal trends in the data over a period of time. Time series analysis is instrumental in capturing relations among social actors (aggregate or individual) that cannot be detected *via* crossectional analyses. Once the patterns in the sample are detected, it becomes possible to explain past behavior of variables, forecast future values, and make generalizations about the population at large. The purpose in analyzing hadith transmission network is to unearth structures that have remained persistent over a millennium.

The patterns will demonstrate the enduring inequalities in the network of scholars. More concretely, the question that time series analysis will answer is as follows: Why do some social aggregate social actors become more prominent than others? Since, I aruge that the answer lies in their network patterns, rather than in the content of narrative they relate, or the depth and breath of their knowledge, the same question can rephrased as follows: what characterizes the network configuration of prominent scholars?

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Exploring this question will help us better understand how the structure of academia is reproduced over time; what are the patterns in the manner in which the ties of scholars are distributed between layers; what most affects the total number of ties which are closely linked to the measure of prominence; what is the structure of inter-layer relations among the prominent scholars.

Vertical Ties between Corporate Actors

My hypothesis is that the reduced number of in-layer connections affects social prominence. In other words, connections to earlier and subsequent layers, rather than to one's own layer, play a role in authority formation. If the connections to one's peers can be considered 'horizontal' then the connections to the upper and lower layers can be conveniently called 'vertical.' More clearly, the dependent variable is social prominence, which is a relative measure produced by the total number of connections of social actors, and the independent variable is in-layer connections. The particular network configuration characterized by the minute ratio of in-layer connections and a high ratio of out-layer connections is called 'inter-layer brokerage.' Both, vertical ties and inter-layer brokerage refer, to the same network configuration.

The hypothesis to be tested here is that the scholars who play a crucial role in the dissemination of socially valuable narrative gain prominence. Prominence analysis is intended to show who occupies this crucial position in the network, and what is responsible for the high visibility of some scholars? Node and link variables will be used in time series analysis to test the above hypothesis. The social value of a narrative is determined by the metanarrative commonly shared by the group. In our case,

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metanarrative is hadith criticism, or Usul al-Hadith. The crucial role in the network, as described above, is inter-layer brokerage. From this perspective, I will suggest that prominence depends in particular on the absence of academic ties to one's own layer. In other words, the more distanced one's ties from his own layer, the more crucial his role in the inter-layer brokerage.

Time Series Analysis

In time series analysis, the first step includes the tests that are needed to determine what kind of time series analysis, if at all, is possible given the available data. This requires the use of stationary tests. The second step includes analyses intended to detect patterns in the data that support the underlying hypothesis of the study. The third step involves forecasting analysis to develop a model that can be used to predict values that are presently unavailable. There are several methods that are currently used to analyze time series data (Gujurati, Enders).

The most commonly accepted stationarity test used by time series econometricians is the Dickey-Fuller (DF) test, named after its authors. However, it is also possible to see the test results through the autocorrelogram, autocorrelation of the lags of the time series against the number of lags. In case the series is non-stationary or it is a random walk, the conventional "t" and "F" tests cannot be used. If these conventional tests are used to regress one non-stationary series on another, one might reach biased results towards the rejection or acceptance of the null hypothesis. Therefore DF τ (tau) test, and DF tau test statistics table, are used. If computed DF τ test statistic is in absolute value bigger than DF τ test value in the table then we accept the hypothesis

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that time series is stationary. As for autocorrelogram function (ACF), econometricians use autocorrelogram coefficient of the lags of the series against time lag. From the first lag to the last one if the coefficients decrease slowly, it is an indication that this series follows a random walk[2].

From a time series analysis point of view, we want to see if there is a significant effect of independent variable "in-layer" (total number of in-layer connections) on dependent variable "total" (total number of student and teacher ties). For this purpose, we need to observe the behavior of the time series. In other words, we need to analyze if time series follows autoregressive process (AR) or moving average (MA) or both AR and MA, which is known as ARMA. Or time series can be analyzed by vector autoregression (VAR) system in which all variables are indigenous[3].

The following is an AR(2) model since it is regressed on 2 lagged of A_t.

$$A_t = \alpha + \alpha_1 A_{t-1} + \alpha_2 A_{t-2} + u_t \qquad \text{AR(2)}$$

[2] Most of the statistical packages such as RATS, SAS, SAS, SPSS, and ET provide the ACF and DF outcomes automatically.

[3] Indigenous variable is a variable determined by the other variables in the model, which are, in turn, determined by the same variable they determine. Suppose we have A, B, C, and D variables. In a VAR system, these variables (A, B, C, D) can be predicted through a system as follows.

$$A_t = \alpha + \alpha_1 A_{t-1} + \alpha_2 A_{t-2} + \alpha_3 B_{t-1} + \alpha_4 B_{t-2} + \alpha_5 D_{t-1} + \alpha_6 D_{t-2} + u_t$$

$$B_t = b + b_1 A_{t-1} + b_2 A_{t-2} + b_3 B_{t-1} + b_4 B_{t-2} + b_5 D_{t-1} + b_6 D_{t-2} + v_t$$

$$C_t = \tau + \tau_1 A_{t-1} + \tau_2 A_{t-2} + \tau_3 B_{t-1} + \tau_4 B_{t-2} + \tau_5 D_{t-2} + \tau_6 D_{t-2} + \delta_t$$

$$D_t = \phi + \phi_1 A_{t-1} + \phi_2 A_{t-2} + \phi_3 B_{t-1} + \phi_4 B_{t-2} + \phi_5 D_{t-1} + \phi_6 D_{t-2} + e_t$$

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However, if series is generated as follows, then, the series is known as MA2 because A_t is regressed on the disturbance term U_t and the lag of disturbance.

$$A_t = \alpha + \rho_1 U_t + \rho_2 U_{t-1} + v_t \qquad \text{MA(2)}$$

The series can also be generated by both AR and MA processes which is known as ARMA process. ARMA model is based on the time series regression of any variable on its own lagged values and lagged values of the disturbance term. The important issue here is that, before applying an ARMA process, one needs to make sure that variables are stationary. If they are not, they could be made stationary through integration. Suppose Y_t is generated by

$$Y_t = \alpha + Y_{t-1} + u_t$$

and suppose Y_t has a random walk, that is non-stationary. The first order integration, however, of this variable is stationary if u_t is 'white noise." The term 'white noise' is used in this context to indicate that the series is stationary. Then

$$\Delta Y_t = u_t \qquad (\Delta Y_t \text{ is stationary since } u_t \text{ is stationary.})$$

Y_t is non-stationary at levels but it is stationary at difference (Δ). If such is the case, and given that our data follows the ARMA process, then overall series follows the logic of

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AR(I)MA model. Here 'I' stands for the number of difference to make the series stationary. Since Δ is lag operator (1st difference), then series is known as AR2, integrated of order (1), MA(2) process[4].

The VAR system is not applicable here since our model includes exogenous (undetermined by the variables in the model) variables such as the "in-layer" (total number of in-layer connections) variable. The VAR system, as aforementioned, requires all the variables in the model to be indigenous.

There is no superiority of a model over others in time series analysis. However, since there is no predetermined or most commonly accepted theoretical model of 'inter-layer brokerage,' it is possible to apply ARIMA since it is a rhetorical, but not a theoretical model. In a rhetorical model, the data are allowed to speak for themselves rather than developing a model on it using other variables. The model, in other words, is based on an explanation derived from the same series based on the assumption that all the influences on the series are reflected in the observed values at various lags, and their differences. Therefore, it is assumed that there is no need to include the possible predictors again in the model. Moreover, ARIMA model is more parsimonious compared to other models because it is not contingent on the reliance of multiple variables.

Time series analysis shows that in-layer ties (the independent variable) have an insignificant role in the total number of ties (the dependent variable). Instead, "Sdown" and "Tup" variables are significantly related to the total number of ties. These patterns are stubbornly consistent over a millennium; they are time independent.

[4] ARIMA (p, d, q), p= 2 AR(2), d= 1 Δ, q= 2 MA(2).

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A rhythm, or age structure, in the way scholars spend their life is also demonstrated by time series analysis, using three variables: "Tup," (teacher connections to earlier layers), "In" (with-in layer connections) and "Sdown" (student connections from subsequent layers. As previously described, Tup and Sdown are unevenly distributed based on distance among Tup1, Tup2, Tup3, and Sdown1, Sdown2, and Sdown3, respectively. There is a rhythm to the activity of prominent scholars who play the role of client when they are young, and the role of patron when they are old. In between, they dedicate their time to research and writing. The periods of being a student, researcher, and a teacher constitute the three main phases of their life[5].

The aforementioned analysis will be carried on the macro (inter-layer connections) level in which connection between layers is treated as the unit of analysis while internal differentiation within layers is disregarded. However, on the micro (inter-scholar connections) level, connection between scholars is treated as the unit of analysis while close attention is paid to internal differentiation. It can be readily observed that even among the prominent scholars some are more influential than others. On the macro level, aggregate values regarding inter-layer connections will be analyzed. On the micro level, however, distribution of the ties of individual scholars to the previous and subsequent layers will be examined.

[5] Transitions between these 3 overlapping phases, from the student-phase to the latency-phase, and to the teacher-phase, is an interesting question that we do not address here. The most crucial one is the last phase of life when one comes out of latency and becomes a teacher sought by teachers. This becomes possible by an opening in the chain with the death of older teachers. The death of the older generation of teachers create an opportunity for the next generation to become the oldest teachers of the time. In the absence of formal appointment of a scholar as a professor, implicit social network dynamics played an important role in determining who would be sought after by students as a teacher.

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Micro-level Inter-layer Brokerage

I conducted the time series analysis described above on the aggregate or the macro level by analyzing the patterns in the distance and volume of inter-layer connections (See Chapter 6). The layer as a social actor is treated as a homogenous body similar to other aggregate social actors such as state, family, and the like. I used the prominence analysis methods outlined here to explore the internal differentiation within the community of prominent scholars (See Chapter 7 below).

Social prominence analysis methods provide the most commonly used tools for the analysis of differentiation within a group (Wasserman and Faust 1994: 167-219; Scott 85-102; Bonacich 1987). Social prominence, simply put, is a measure derived from the total number of connections a scholar has to other central figures in the social network. From an extremely simplistic point of view, the higher the total number of connections people have to other central social actors, the more prominent they are. Since some scholars have more ties than others, it is easily noticeable that there is a differentiation within the network of prominent scholars, huffaz. The question then is what makes some scholars more visible than others? Or what accounts for their highly central role among their colleagues? Both link (variables about connections) and node (variables about various characteristics of scholars such as lifetime, birthplace, family, etc.) variables will be utilized in the analysis of social prominence.

Vertical Ties between 'Stars'

Individual hadith narrators who compromised the community of huffaz had different numbers of ties. Furthermore, the total number of ties was unevenly distributed

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between student-ties and teacher-ties. In addition, the distance between a narrator's own layer and the layer of his teachers and students also varied. For instance, let us suppose that there is a scholar from layer 6. His teachers usually come from layer 5, 4, and 3, while his students generally come from layer 7, 8, and 9. (Hardly ever, might he have ties to teachers from layer 2, and students from layer 10. The number of ties to four layers up and four layers down remains insignificantly small in the entire life of hadith transmission network.) The number of teachers and students from each of these layers will not be equal. The degree of distance between one's own layer and the layer of his teachers and students is limited to three layers upward and three layers downward. The total seven layers, including one's own layer as well, constitute the outmost borders of one's reach. The network of a scholar cannot expand beyond these boundaries. This feature is important in determining the possible number of ties scholars could have established as opposed to the number of actual ties they had. The question prominence analysis aims to tackle is as follows: *Why did some social actors become more prominent than others in the network?*

Prominence analysis is intended to uncover the internal differentiation within the network of prominent scholars. In the micro level analysis (Chapter 7), the scholars who rose above other prominent scholars by successfully competing against them are called 'stars,' simply for reasons of convenience. A subset of the data is created consisting of stars, scholars who scored highest in prominence by establishing the largest network among their colleagues[6]. Three scholars from each layer with the highest number of ties

[6] Our original data set with 24 generations of scholars is too big to be handled by the current social network analysis software.

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make up the group of stars. In addition, owing to their highly visible historical role, founders of four major law schools and the authors of the six canonical hadith compilations are also included, even though they may not have had the greatest number of direct ties in their particular layer.

Authority Formation from Chains of Social Relations

Social prominence, which is the dependent variable in this analysis, is typically defined as the total number of actual ties a social actor has to other prominent actors divided by the sum of possible ties he could have. In our data, the ties to non-prominent (non-hafiz) actors are not included; all ties in the data show a connection to another important hadith-narrator who carried the title of hafiz. Therefore, one might be easily persuaded to conclude that there is no need to add weight to the ties to more powerful actors as it is usually done in prominence analysis. However, as previously mentioned, there is an internal differentiation among the prominent scholars, and consequently all ties do not have the same importance.

Figure 5.1: The Role of Second Step Ties

Suppose that scholar A has ties to 3 prominent scholars, X, Y and Z. Scholar Y has only one tie. Scholar X has seven ties. And Scholar Z has three ties. These ties could be to teachers and students, which is not relevant for our present concerns. Among these three connections scholar A has, which one is more important for him? Scholar A's connection to scholar X is more crucial for him compared to his connections to scholars

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Y and Z because X is more central than others. A connection to Y means access to more resources of information. Importance of a social network tie is proportional to the centrality of the person sought after.

The overall-prominence will be further analyzed by looking at teacher-prominence and student prominence to see if there is a relationship between the two. From this perspective three types of prominence measures are created: overall-prominence, teacher prominence, and student prominence. Overall prominence is equal to the total number of ties a scholar has regardless of its type (total). Teacher prominence is equal to the number of ties a scholar has to his students (Ssum). Student prominence is equal to the number of ties a student has to his teachers (Tsum).

The relationship between these variables will be used to explore patterns in the network. The analysis will demonstrate if there is a relationship between being a prominent student and being a prominent teacher. More clearly, the analysis will address the following questions. Do prominent students become prominent teachers? Or, is there a particular network configuration that is responsible for teacher prominence? For instance, how does the number of ties to three layers above affect the number of student ties from subsequent layers?

Coupling Literary and Social Dynamics

The above-described social phenomenon is an unintended outcome of an underlying linguistic phenomenon. More concretely, the reason why prominent scholars avoid in-layer connections is because they want to reduce "the levels of reported speech."

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This hypothesis will be tested by using historical, social network, and sociolinguistic methods.

The Effect of the Levels of Reported Speech

Few scholars can speak with object language about scientific phenomena; this is an important privilege in the scholarly community. The rest of the scholars have to cite and report. When reporting, the rule is to use the least possible levels of reflexive speech because prestige is inversely related to the levels of reported speech one uses in his talk.

Only eyewitness narrators--whether they are scientists working in a wealthy lab, or anthropologists visiting a strange Australian tribe, or historians reporting an important event—enjoy the prestige of using object language when they tell their stories about the phenomena under investigation. However, others can only tell stories by citing them. Moreover, the citation made from a secondary or tertiary source is ill received in the scholarly community. For instance, if a student cites the work of his professor from the paper of a fellow student in which the text of the mutual professor's work is quoted, the citation would not go without criticism even if it is completely accurate. This rule about language-use concerning reporting and narration unintentionally affects the network configuration of scholars; the outcome is the absence of academic ties to fellow scholars from the same layer.

This particular system of language-use concerning reported speech in present day academia resembles closely the practice which existed among scholars in medieval Islamic civilization. Such was particularly true in the case of hadith scholars whose sole preoccupation revolved around carefully selecting the shortest available chains of

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authority while narrating hadith. Therefore a weight value based on geodesics will be added to the model.

Figure 5.2: The Role of Geodesic Value

In the hadith culture, the shorter the narrative chain to the Prophet the more prominent the scholars who use it. But why? This can be attributed to language-use. Layers who were closer to the Prophet used lesser levels of reported speech because then they could report hadith with relatively reduced or shorter chain of authorities. Conversely, later layers had to use increasingly multilevel reported speech as the links in the chains of authorities increased through the passage of time. More concretely, a Companion used object language, and eyewitness narrative, when he told stories of the Prophet because usually he also was a part of the event he was reporting.

In narrative, only eyewitnesses can use object language. The Companions enjoy this privilege in the case of hadith. The segment of Companions who are considered huffaz in the entire network is extremely small. Only 26 narrators from 1190 prominent narrators up until the 24th layer belonged to the layer of the Companions. Those who hear the stories from the eyewitness sources and convey them to others cannot use object language; they must use reported speech. They have to say, I heard from such an such person that such and such event took place. The same rule applies to those who hear from this discourse mediator. But this time, they must use two-level reported speech and mention in their report the name of the mediator who heard it from the eyewitness that such and such event took place.

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As the story disseminates among people, each new node in the network adds a new level to the levels of the reported speech. The ties in the social network increase simultaneously and at the same rate with the increase of the levels of reported speech. Yet, we need to capture and analyze this elusive process. In brief, the question this analysis addresses is as follows: *How does language-use implicitly configure academic networks among prominent scholars?*

Relying on reported language is a sign of dependency; it is an acknowledgment that one cannot have direct access to the information. Worse is to use multi-levels of reported speech, an acknowledgment of distance from the central figures in the network, and thus from the original sources of information.

Object language is intimately linked to eyewitness narrative while reported speech is an indispensable characteristic of non-eyewitness narrative. Concepts derived from Lucy, Silverstein, and Ong are operationalized in the analysis. However, the distinction between object language and reported speech allows itself to be more easily connected to the stratification of scholars and layers of narrators than Ong's analysis of narrative.

Operationalizing LRS Effect: How many Levels of Reported Speech does a Tie Save?

LRS effect works as an overlay on both ILB and IDB effect; inter-layer relations have their roots in language use and modes of narrative. These effects belong to two different realms, one is social and the other is literary. The question at this point is how will the LRS effect be operationalized methodologically along with the social processes outlined above (ILB effect and IDB effect) in such a way that the final model reflects the intertwining social and linguistic processes.

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Suppose that a scholar from layer 6 has two ties. One is to a teacher from layer 5, the other is to a teacher from layer 3. Which one is more valuable for him? Of course the tie to the teacher from layer 3 is more valuable than the tie to the teacher from layer 5. The reason for this is that the connection to layer 3 teacher is an important asset in the hadith community because it will reduce the levels of reported speech for student by skipping three nodes between the third and the sixth layers.

Similarly, suppose that there are two hadith scholars from layer 6 each with total for teacher ties. But one of them has all his ties to teachers from layer 5 and the other one has 1 teacher from layer 5, one teacher from layer 4, and two teachers from layer 3. Which one will be more prominent? Although the number of ties they have are the same, the latter will be more prominent because his ties get closer to the original source and allows him to speak with less levels of reported speech.

Likewise, suppose that a student from layer 7 cited one of these scholars from layer 6, and the other was cited by a student form layer 9. Which one of these student connections will be more important? From the perspective of inter-layer brokerage, the latter tie will be more important because it will show that the cited scholar has a more extensive influence on the young. Furthermore, since his student will have a relatively shorter chain of authorities, his prominence will increase proportionate to the prominence of his young student.

Figure 5.3: The Role of Levels of Reported Speech

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This leads us to conclude that the more the network distance between one and the layer of his teacher and student the more valuable the tie is. Consequently, the ties will be weighted in such way that they reflect the distance between the origin and the destination of the tie. The bigger the gap between the origin and the destination of a scholarly tie the more important the tie.

The distance between origin and destination is indicated by the variables constructed for this purpose. As is already mentioned in the previous section about data, all teacher and student ties are recorded in such a way that they include information about the distance of the tie. The numbers at the end of teacher and student variables indicate the distance. For instance, Tup4 means teacher tie from four layers earlier. Sdown3 means student tie from three layers later.

Each tie will be weighted by the distance it bridges. For instance, Tup4 connections will be multiplied by 4, similarly Sdown4 ties will be multiplied by 4. Tup3 ties will be multiplied by 3 and Sdown3 ties also will be multiplied by 3. Ties within the same layer or only to one upper and one lower level will have no weight value. These include the following variables: Sin, Tin, Tup1, Tdown1, Sup1, and Sdwon1.

Conclusion: Authority Formation from Diachronic Social and Literary Dynamics

Authority formation is a chaotic process that cannot be properly understood unless the analytical tools from different fields are harnessed together in the analysis. This study combines social network and time series analyses because the social network analyzed here expands over a millenium and includes two scores and a half of layers of scholars. It also combines network analysis methods with sociolinguistic and socionarrative methods

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because social networks are constructed jointly by social and literary structures. Furthermore, the hadith transmission network analyzed here had developed solely around a linguistic structure, hadith.

Methods for the analysis of time-stratified social networks are still in an embryonic state. This is true not only because time is an elusive phenomenon but also it is almost impossible to collect social network data for more than a very limited number of generations.

> Network analysis and network models have often been criticized for being static. Although much work has been done on longitudinal models, applications of this methodology are sorely lacking. Models are quite complicated, and often require continous records of networks changes, which are often hard to collect. ... Good, easy-to-use methods for longitudinal network data would be an important addition to the literature (Wasserman and Faust 1994: 731).

From this perspective, hadith data provides us with an excellent site to develop methods for the purpose of analysing inter-layer and time-stratified networks.

The following figure, which Saussure drew years ago to explain the 'internal duality of all sciences', makes the illustration of the easier. Saussure drew two axis:

> 1. *Axis of simulatenity* (AB). This axis concerns relations between things which coexist, relations from which the passage of time is entirely excluded.
> 2. *Axis of succession* (CD). Along this axis one may consider only one thing at a time. But here find all the thigs situated along the first axis, together with the changes they undergo (Saussure 1994: 80).

Figure 5.4: Internal Duality of Sciences According to Saussure

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More clearly, synchronic analysis is about relations between coexisting elements while diachronic analysis is about relations between succeeding elements of a system.

The need for accomodating time in social network analysis has increasingly been emphasized; however, there is another potential area of expansion for network methodology yet be noticed by scholars in the field, namely the instruction between social networks and social narratives. Networks of narrative are as common as neglected. The current methods in sociology today reflect the gap between literary and social structuralism. The methodological approach adopted in this study might pave the road towards creating methods that would be based on a new conceptual foundation with an emphasis on the interaction between literary and social structures.

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Table 5.1: Maximum Reachability among Layers (layer names)*

Layer No	*Up4*	*Up3*	*Up2*	*Up1*	*In*	*Down1*	*Down2*	*Down3*	*Down4*
Scope of L** 1						1			
Scope of L 2				1	2	3	4	5	6
Scope of L 3				2	3	4	5	6	7
Scope of L 4			2	3	4	5	6	7	8
Scope of L 5		2	3	4	5	6	7	8	9
Scope of L 6	2	3	4	5	6	7	8	9	10
Scope of L 7	3	4	5	6	7	8	9	10	11
Scope of L 8	4	5	6	7	8	9	10	11	12
Scope of L 9	5	6	7	8	9	10	11	12	13
Scope of L 10	6	7	8	9	10	11	12	13	14
Scope of L 11	7	8	9	10	11	12	13	14	15
Scope of L 12	8	9	10	11	12	13	14	15	16
Scope of L 13	9	10	11	12	13	14	15	16	17
Scope of L 14	10	11	12	13	14	15	16	17	18
Scope of L 15	11	12	13	14	15	16	17	18	19
Scope of L 16	12	13	14	15	16	17	18	19	20
Scope of L 17	13	14	15	16	17	18	19	20	21
Scope of L 18	14	15	16	17	18	19	20	21	22
Scope of L 19	15	16	17	18	19	20	21	22	23
Scope of L 20	16	17	18	19	20	21	22	23	24
Scope of L 21	17	18	19	20	21	22	23	24	25
Scope of L 22	18	19	20	21	22	23	24	25	26
Scope of L 23	19	20	21	22	23	24	25	26	
Scope of L 24	20	21	22	23	24	25	26		
Scope of L 25	21	22	23	24	25	26			
Scope of L 26	22	23	24	25	26				

* Numbers in the cells indicate the number of a layer, which is within the scope of the layer in question.
* L indicates layer.

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Figure 5.1: The role of second step ties

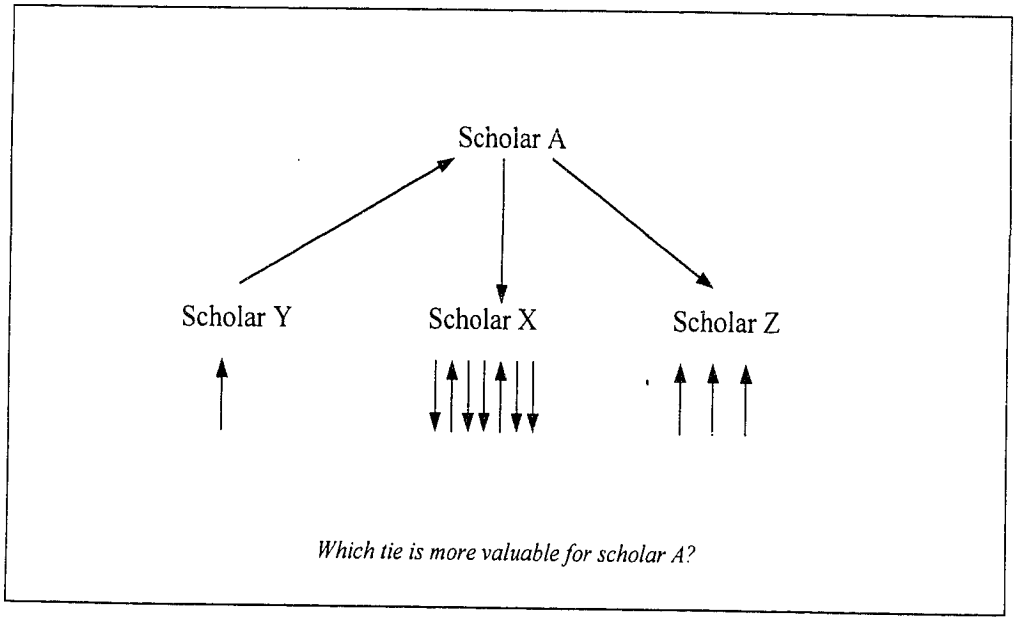

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Figure 5.2: The role of geodesic value

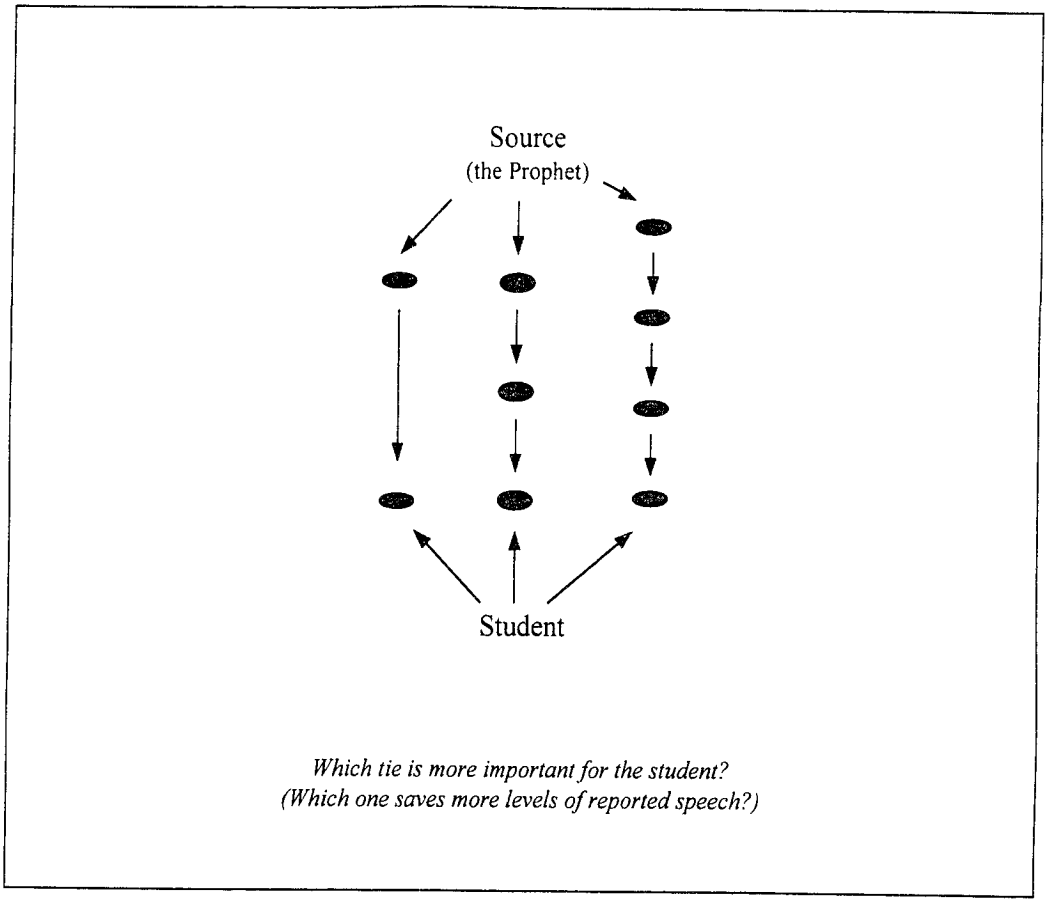

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Figure 5.3: The role of levels of reported speech

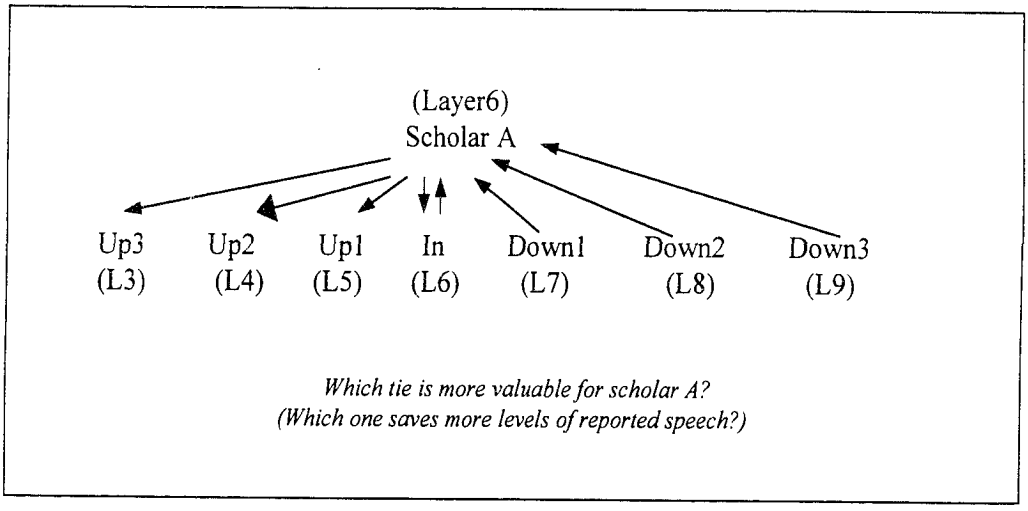

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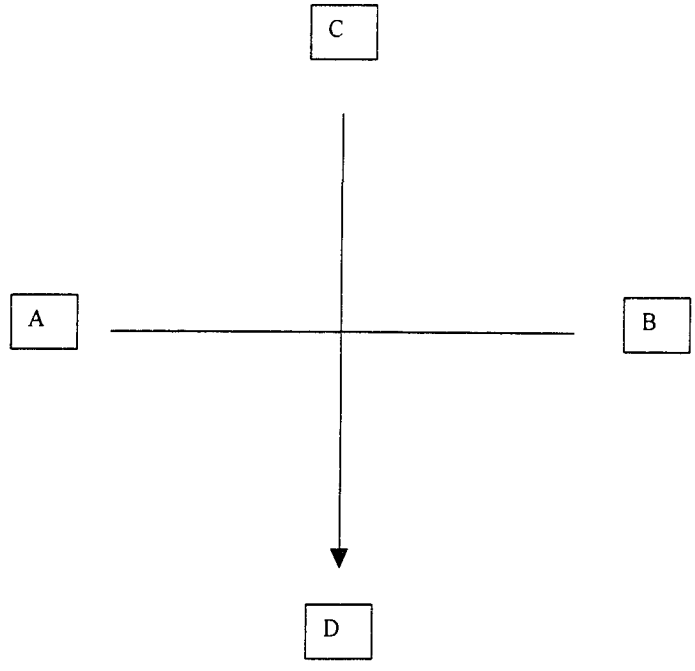
Figure 5.4: Internal Duality of Sciences According to Saussure (Saussure 1994: 80)



(AB: Axis of Simultaneity; CD: Axis of Succession)
(This figure elaborates further Figure 2.2: Map of Saussure's query for structures)

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Chapter 6

Macro level analysis

SOCIAL AND LITERARY DYNAMICS OF AUTHORITY FORMATION:

MACRO LEVEL LRS EFFECT

This chapter is intended to explore why certain aggregate/corporate social actors in a discourse network gain more authority than others, and how this authority gets transferred to the ensuing generations? More concretely, why did a stratum identified as huffaz, so minute in size, gain unparalleled authority in the hadith transmission network, and how could the huffaz transfer this authority to their students? I searched for the answer in cross-temporal, inter-layer, ties and demonstrated how insignificant, if not negative, the role of synchronic, in-layer, connections is compared to diachronic relations. The patterns, time series analysis shows, are persistently replicated in the network of the 26 layers for about a millennium. This chapter concludes with the discussion of how metalanguage, namely reported speech, sustains the whole process out of sight.

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This chapter explores the literary and social dynamics of authority formation in scholarly networks through time on the macro level by employing layers and their connections as the units of analysis. By doing such, I aim to unearth patterns in the social action of aggregate social actors over an extended period of time. In particular, the purpose is to discover the regularities over time in the network of hadith scholars with respect to the inter-layer relations as they relate to the dynamics of authority formation. To this end, time series analysis combined with network and discourse analysis methods will be used[1]. The analysis will search, in the lengthy and unstable history of the hadith transmission network, for change and continuity that characterize both mode of narrative and social network patterns as well as their interaction over centuries. The interaction between discursive and social structures will be demonstrated on the level of metalanguage.

Analysis of the connections between layers as aggregate social actors helps us to see that enduring patterns in social relations produce social structures through which social inequalities are produced and reproduced over time. The network configuration of the prominent stratum remains the same not only over years but also over centuries. The network patterns survive the test of time and do not simply fade away. For patterns in social relations to endure, they must be rooted in fundamental social processes such a language use. Are there such patterns in the scholarly community that bears upon authority formation? And if so, what are the processes through which inequalities are regenerated by each layer? This chapter will explore these questions on the macro level by analyzing the network of 26 layers of prominent hadith scholars who, despite being a

[1] For an earlier application of time series analysis in social networks research, see Burt (1975).

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tiny group, were the most influential segment of the scholarly community during their time.

Layers, which will be used as a unit of analysis in this chapter, are aggregate social actors who are differentiated from other social groups by their social identity deriving mainly from their network location in history[2]. As we discussed in the previous chapter, each layer has a short-lived life not longer than those of the individuals who constitute it. Social relations between aggregate actors *vis a vis* each other follow an elusive logic and persistent patterns that cannot be undone so easily by individual social actors. These patterns demonstrate enduring inequalities among scholars that can be best observed through an analysis of their network configuration.

Is there a distinct configuration for the network of the huffaz stratum that persisted over centuries? If so, how can that be detected? This chapter will tackle these questions using time series analysis as well as social network analysis. The volume of connections between and within layers will serve as a vintage point in the analysis.

Regarding to the continuity in the network, the analysis below suggests that certain patterns of social relations persisted over almost a millennium in the hadith transmission network. For instance, the symmetrical nature of the distribution of ties does not change; the connections of a layer are symmetrically distributed with the earlier and later layers. Likewise, the rate of in-layer connections compared to out-layer connections remains always extremely low, if not completely insignificant. Similarly, the

[2] Layers partially gain their identity from what is reachable exclusively to them but not to the others; for instance, the Companions gained a high status because the Prophet's layer was in their network reach. Likewise, the Successors enjoyed a highly respectable status for having the Companions within their network reach.

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composite values for the distribution of connections from a layer to its neighboring layers also remain stable; there is no drastic change in the percentage distribution of connections of a layer to its own, or to earlier and later neighbors.

In contrast, again the analysis below suggests, the hadith transmission network evidently underwent changes in its lengthy history. For instance, as we mentioned earlier, the size of the network changed. Consequently, so did the total number of connections for each layer. Similarly, the rate of networking activity of scholars from a layer, which is reflected by the average number of connections per scholar in each layer, also changed, indicating that scholars were not as active in all ages in establishing connections with prominent teachers and students. Some layers were less active than others in seeking ties with the prominent teachers and students, which can be attributed to political and cultural disturbances along with the ongoing literary and social processes in the network.

This issue is closely related to network density. I found that the density of connections between and within the layers fluctuates yet with an order detectable by network analysis. The layer is thinly connected to itself whereas it is thickly connected to layers below and above. This finding is demonstrated by the ratio of the total number of connections between layers.

Furthermore, it is possible to break down the total number of connections, which is an aggregate of teacher and student ties, into its components to see if the same pattern can be observed. Since hadith transmission network is a dual mode network (teacher connections vs. student connections), student and teacher networks, analyzed separately, also conform to the same pattern: layers are thinly connected among themselves

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regardless of whether or not we investigate teacher or student connections. This particular configuration of the network, persistent through 26 layers, is a manifestation of inter-layer brokerage that characterizes the network of prominent scholars.

More concretely, the analysis below suggests that prominent scholars in the hadith transmission network from a layer did not establish academic connections with their fellows from the same layer although they could do so very easily. In contrast, they sought for connections that were costly to establish. Even though the information to be obtained was going to be the same, scholars were ready to pay the price to get it from the earliest authorities who were closest to the source.

This is a paradox. Why do social actors readily pay the price to get a narrative from the original source, or the closest to it, even if the information they can get from other sources will exactly be the same in content? In the final section of this chapter, I will deal with this paradox in greater detail, but briefly put, this particular network structure is an unintended consequence of an attempt by scholars to reduce the levels of reported speech (LRS). Yet, they were constrained in doing so by the limitations imposed by time.

In a time-stratified network social actors are constrained by time because not all layers can establish connections to all other layers at wish. It should be stressed that this is simply due to time constraints but not due to social constrains such as class difference, social discrimination and the like. Only a limited number of layers are reachable by a given layer because during its life time some earlier layers had demised while some future layers are yet to be born. Past and future layers within the reach of a given layer

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constitute its network scope which is determined by what is called here maximum reach of a layer (MR).

Only a limited scope of the network constitute the social domain of a layer through direct ties whose borders are demarcated by MR. Beyond that border, they have to rely on the (n step) indirect connections. In other words, they are still connected but through indirect ties. The analysis of social network must therefore take into account the maximum reach of a layer and focus only on its network scope. The borders of maximum reachable areas in the networks are determined by the convergence of the lifetime of layers. Those layers which demised earlier or those yet to be born in the lifetime of a particular layer are outside its reach *via* direct ties. Thus, each layer has its own social domain that overlaps to varying degrees with the domains of particular others. Therefore, this chapter has to determine and take into account the maximum reachable areas for each layer. Otherwise layers from discrepant times, which cannot have direct connections to each other, might be mistakenly lumped together in the analysis.

The following analysis will employ raw, average, and composite values in the comparisons between layers depending on our interest at the time. Raw values are useful in observing the fluctuation in the total number of connections due to the variation in the size of the layers, which is an outcome of the instability in the number of scholars belonging to each layer. Values for the average number of connections per scholar from a layer is useful to explore the increase and decrease in the networking activity of scholars in each layer. Furthermore, the general measures about average number of connections between layers will be broken down into its composite values; average number of teacher and student connections from a particular layer to other layers. This is useful in

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determining the extent to which scholars were attracted to particular neighboring layers. On the other hand, composite values or percentages of connections of a layer to its neighboring layers are useful in analyzing proportionate or relative measures for the distribution of connections of a layer.

This leads us to another question: how thickly were the layers of scholars connected to each other? With the purpose of tackling this question, this chapter undertakes the analysis of network density. The analysis of network density over 26 generations unearths the regularities over time in the level of density of the connections of a layer to its neighboring layers in its maximum reach. It also shows where networking activity concentrates; whether within a layer itself or between neighboring layers. If the networking activity concentrates on the inter-layer connections, then, the question becomes which layers are more closely linked to each other?

Since the hadith transmission network is a dual mode network consisting of teacher and student ties, we need to investigate the density in each mode separately. From a more detailed view, the total number of connections will be further broken down to its composites, that is to its teacher and student connections. Depending on the interest, the analysis will oscillate between non-directional and directional ties. The former, non-directional ties, take into consideration only the existence of a tie regardless of its type, while the latter take into account whether they are student or teacher connections.

By oscillating between divergent measures, it is possible to capture the change and continuity in the social structure of hadith transmission network. The size of the network, the number of connections, the density of the network undergo change. But one

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feature remains unchanged: the inter-layer brokerage. In other words, the in-layer connections always remain at an extremely lower rate compared to the other types of connections, which show that the stratum of prominent scholars was not closely connected within itself.

But why? Why did in-layer connections remain so minute although a prominent group is usually expected be closely connected within itself? In the final section, this chapter will investigate the underlying literary dynamics that helped shape the configuration of the network. More concretely, the respective role of social and literary dynamics and their interaction in the production and reproduction of social structure will be explored. Following the methodology I outlined earlier, I will look at the patterns in the metalanguage to demonstrate intertwining discursive and social patterns.

Diachronic Structures

I hypothesized that avoiding in-layer connections, thus the increased levels of reported speech, leads to social prominence in a social organization. It should be reiterated that a social organization is presently perceived as a discourse network. This is especially true for the scholarly or academic networks such as the network of huffaz. In other words, authority formation in academia is contingent upon a radically reduced number of teacher and student connections to one's own cohort. In the analysis, authority or social prominence, which is derived from the total number of connections, serves as a dependent variable, whereas in-layer connections serve as an independent variable.

This hypothesis can be tested by exploring the explanatory power of in-layer connections on the total number of connections of a layer. If total number of in-layer

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connections, whether raw, average, or a percentage, has no explanatory power on the total number of connections, then, our claim is empirically grounded. If, on the contrary, the total number of in-layer connections has a significant explanatory power on the total number of connections of a layer for all 26 layers, then, we accept that the validity of our hypothesis can be refuted. Since we have a dual mode network (teacher and student connections), both teacher and student connections as well as their aggregate, the total number of connections, will be employed in the analysis. If the argument holds true for the 26 layers whose connections are analyzed here, then, the conclusion can be derived that the hypothesis should be accepted.

Measures for Diachronic Structures

The size of the network, which is represented by the node variables, has an explicit relationship with the network connections, which are represented by the link variables. These two units of analysis, node and link variables, that is to say information about aggregate social actors and their relations, bear upon each other. The total number of connections change from layer to layer because the size of the node, being the number of scholars in each layer, changes.

Unsteady Size and Fluid Connections: How do Nodes Relate to Links?

There is a strong correlation between the size of the layer and the total number of its connections to the neighboring layers. They increase and decrease together over time.

Table 7.1: A Bird's Eye View

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Table 7.1 shows that layer 1 and layer 26 consist of only one person, the Prophet, and Suyuti, respectively. Yet layer 9, being the most populated layer, consists of 130 huffaz. For obvious reasons, layer 1 has 0 teachers whereas layer 26 has 0 students; the former is the beginning and the latter is the end of the network of huffaz. On average, however, each layer consisted of 47 prominent scholars with 527 connections. Again on average, each scholar had around 5 teacher and 5 student connections with a total of 11 connections. The average number of students per scholar is highest for layer 1 and layer 2, followed by layers 5, 6, and 7.

Graph 7.1: A Bird's Eye View on Aggregate Values

Graph 7.2: A Bird's Eye View on Aggregate Values

Graph 7.1 and Graph 7.2 make these fluctuations more observable. Graph 7.1 shows the total number of connections (teacher, student, and aggregate connections) correlated with the increase and decrease in the number of scholars constituting each layer. Graph 7.2 displays the fluctuations in the average student and teacher ties per scholar in each layer. The imbalance at the outset between average number of students and teachers is normalized by an approximate symmetry in layer 3.

As the network expanded in the early phase of Islamic history due the rapid spread of Islam, the number of scholars comprising a layer of huffaz also increased. So did the total number of connections of layers in that period. On the other hand,

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concurrent with increasing prevalence of writing, the size of the network began to taper off due to the decreasing interest in becoming a hafiz of hadith. In due course, the number of scholars in each layer also decreased. Consequently, the total number of connections per layer decreased as well.

The values on Table 7.1 can be broken down by taking into account the temporal location of social actors in the dyad. Table 7.2 and Graph 7.3 break down each connection into nine categories, Up4 to Up1, In, and Down1 to Down 4. Each variable, as I have explained earlier, shows the varying distance between the origin and the target of the connections.

Table 7.2: Connections

Graph 7.3: Connections

Table 7.2 and Graph 7.3 show that most connections fall in Up2 (N=3564) and Down2 (N=3564) category (Mean =137.8), followed by Up1 and Down1 connections (Mean = 89.04). They are followed by Up3 and Down3 (N= 519, Mean = 19.96) and Up4 and Down4 (N= 18, Mean = 0.69) connections.

Now, I further dissect the above measures to student and teacher connections. Table 7.3 and Graph 7.4 illustrate the distribution of student connections, whereas Table 7.4 and Graph 7.5 illustrate teacher connections.

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Table 7. 3: Student Connections

Graph 7. 4: Student Connections

An overview of student connections in Table 7.3 demonstrates that they concentrate on relations to subsequent layers, Down1 to Down4. The highest concentration of student ties is to Sdown2 (N=3515, Means = 135.19). It is followed by Sdown1 (N= 2134, Mean = 82.08), and Sdown3 (N= 518, Mean = 19.92). The Sdown4 (N= 178, Mean = 0.65) is smaller than 'Sin,' in-layer student connections, (N= 440, Mean 16.92), and Sup2 (N= 49, Mean = 1.88). There is only one student connection to Up3 and Up4. Graph 7.4 lays out these processes for 26 layers.

Similarly, Table 7.4 and Graph 7.5 illustrate in detail the distribution of teacher connections based on origin and target. An overview of the table and graph suggest that teacher connections are distributed in a large array from Up4 (Mean = 0. 69) to Down4 (Mean = 0.04). Yet, the highest concentration of teacher connections is on Tup2 (Mean = 135.19), followed by Tup1 (Mean = 82.08). In-layer teacher connections is again low (Mean = 16.92). However, from layer 23 to layer 26, there is no in-layer teacher connection.

Table 7. 4: Teacher Connections

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Graph 7.4 shows that Tup2 connections remain the highest from layer 6 to layer 13, at which point Tup1 connections gain prominence from layer 14 to layer 20. It also shows the insignificance of in-layer and Tdown connections.

Graph 7. 5: Teacher Connections

Aggregate Measures: How Active are Layers in Networking?

Are all layers equally active in networking? The average number of connections per social actor from a given layer can be utilized in the analysis of patterns in the level of networking activity of social actors. Variation and regularities in the level of activity of layers in networking can be captured through an analysis of average number of connections.

In the hadith transmission network, it can be inferred from a comparison between average number of connections for different layers that not all layers were equally active in establishing ties with other layers. As a result, the average number of connections per scholar in different layers fluctuates over time. There is only a few detectable pattern in these fluctuations which I will discuss later.

Yet, it is not difficult to observe that average in-layer connections per scholar remained stable at a very low rate although the values for other variables (up and down variables) fluctuated without a detectable pattern. Even though some layers were not as active in networking compared to other layers, all layers were virtually static with respect

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to in-layer connections. The former is exemplary of change while the latter demonstrates continuity.

The change in the average number of connections begs for an explanation. Why were scholars at certain times more actively involved in seeking a higher number of teachers and students as compared to their colleagues from other layers? These questions can be the subject matter for a separate study. Yet, we can briefly say that the fluctuation in the average number of academic ties to the prominent scholars in the course of history might be due to political and cultural unrest that Islamic civilization underwent in certain periods in its history. Looking at the concurrent events during the lifetime of layers might reveal the influence of these historical events on the network. Examples of these major historical changes and turbulence that might have influenced network patterns include transfer of power between dynasties, Mongolian attacks, crusades, and the like. More importantly, the changing internal dynamics of the network such as evolving mode of narration might also be responsible for some of these changes. We have to leave these questions to another study.

Table 7.5 and Graph 7.6 below consider average number of connections per scholar from a given layer to itself and to eight other adjacent layers. These figures are obtained by dividing the number of connections with the number of scholars. Overall, Table 7.5 shows that average number of connections per scholar is not very high. Each scholar had on average 2.54 connections to Down1; 1.67 connections to Up2; and only 0.64 in-layer connections. The fluctuation in the figures is reflected in Graph 7.6. Down2 and Up2 connections figure high at different periods. One detectable stable

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pattern is reflected by the minute value about the number of in-layer connections per scholar.

Table 7. 5: Average Connections per Scholar

Graph 7. 6: Average Connections per Scholar

The following tables (Table 7.6 and 7.7) and graphs (Graph 7.7 and 7.8) separate teacher and student connections from each other. Table 7.6 and Graph 7.7 are on average student connections per scholar. Mean student connection per scholar is 2.44 in Down2 connections, and 1.8 in Down2 connections. Down3 and in-layer connections are equal to each other, 0.32. The tension between Down2 and Down1 connections is well viewed in Graph 7.7.

Table 7. 6: Average Student Connections per Scholar

Graph 7. 7: Average Student Connections per Scholar

Graph 7.8 shows that the highest number of teachers per scholar is from Up2 (Mean = 1.63), followed by Up1 (Mean = 1.47). The number of in-layer teachers per scholar is very minute (Mean = 0.32). Graph 7.7 shows that the number of teachers per

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scholar from Up2 remained the highest for the most part in the history of the network. Yet, after layer 13, Up1 connections gained prominence.

Table 7. 7: Average Teacher Connections per Scholar

Graph 7. 8: Average Teacher Connections per Scholar

Averages: Where do Prominent Scholars Invest most?

It is commonly known that scholars do not randomly choose their students. Nor do students, especially the aspiring ones who would become prominent scholars in the future, randomly choose their teachers. There is a logic at work in the process here that determines who is attracted to whom as a teacher and student. The constraints involved make one-sided choices difficult, if not impossible. The mutual decision of student and teacher is required unless there is a highly centralized educational system. This is especially true for the relationship between hadith students and teachers because hadith education always remained decentralized, or better multi-central, and outside the control of governments and large institutions, such as those that we are familiar today. By adopting a proportionate approach to the values producing the total number of connections, it is possible to analyze the logic of strategic investment by scholars. I analyzed the composite values for the total number of connections to detect the patterns in the way scholars invested their time and energy.

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Table 7.9 lays out the composition of connections for a layer in percentages. The share of Up4 and Down4 is insignificant (Mean = 0). The highest share belongs to Up1 and Down1 (Mean = 0.24). Up1 is followed by Up2 and Down2 (Mean = 0.17), and Up3 and Down3 (Mean = 0.03). The share of in-layer connections is 0.1. In other words, only 1 % of the connections was to the peers from the same layer whereas 24 % was to the one step upward and downward layers. These figures also demonstrate the minuteness of the chance of establishing connections to three-step-away layers. These figures follow a horizontal S shape; they slowly rise in the beginning (Up4, Up3), reach the highest point (Up2, Up1), fall in the middle (In), sharply rise again (Down1, Down2) and eventually completely wane (Down3, Down4).

Table 7. 8: Composition of Connections

Graph 7.9 maps these network features for 26 layers. The instability in the beginning and at the end is well captured by the graph. What is in between is not less chaotic. By reviewing this graph, one can see the continuous contrast between in-layer and out-layer connections, as well as the fluidity of the out-layer connections.

Graph 7. 9: Composition of Connections

Regarding the composition of student and teacher ties, Table 7.9 lays out the figures on the composition of student connections, while Table 7.10 does the same for the teacher connections for 26 layers. By reviewing these tables, one can tell that most of the

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teacher connections concentrate on the earlier layers whereas most of the student ties concentrate on the later layers.

Table 7. 9: Composition of Student Connections

Graph 7. 10: Composition of Student Connections

Graph 7.10 suggests that in the beginning, Sdown1 connections remain almost always the highest, with the exception of layer 4, until layer 11. Beginning from layer 12, suddenly, Sdown2 connections gain supremacy until the end with a few exceptional periods. In-layer connections, on the other hand, remain below 1 % until layer 13. By then, the share of in-layer connections begins to increase until it reaches up to 4.7 % in layer 22.

Table 7. 10: Composition of Teacher Connections

The fluctuations similar to the ones we noticed above can also be observed in the distribution of teacher connections in Graph 7.11, which illustrates that there was a competition between Tup3 and Tup2 connections. Graph 7.11 also demonstrates that in the beginning and at the end of the history of the hadith transmission network, the number of Tup3 connections are higher, while in the middle period, it is observable that Tup2 connections prevail.

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Graph 7. 11: Composition of Teacher Connections

The distribution of connections from a layer to the surrounding earlier and later layers follows a stable pattern with respect to in-layer connections. The lowest among them is the in-layer connections. These patterns endure for the whole life of the network of 26 layers of hadith scholars.

Percentages: How Thickly are Layers Connected to each other?

Network density is equal to the proportion of actual connections as opposed to the possible connections within a network. It is a useful indicator regarding the density of connections in the network. Measures of density are used to analyze how thickly layers connect themselves to each other. The density of connections within a layer is very low and this remains the same over centuries.

The concept of network density as it is developed and applied to crossectional networks is not suitable for the analysis of time stratified networks. Proper modifications need to be made in order to make the current density analysis methods applicable to time stratified networks. "The density of a graph is defined as the number of lines in a graph, expressed as a proportion of the maximum possible number of lines. The formula of density is

$$\frac{l}{n(n-1)/2}$$

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where *l* is the number of lines present. This measure can vary from 0 to 1, the density of a complete graph being 1" (Scott 74). This analysis is suitable for non-directional graphs, which disregard the direction of ties by ignoring whether they are giving or receiving ties. For the directional graphs, which take into account whether ties are giving or receiving, certain modifications are needed. In the case of the hadith transmission network, a direction graph consists of student (receiving) and teacher (giving) connections.

> In directed graphs the calculation of the density must be slightly different. The matrix for directed data is asymmetrical, as a directed line from A to B will not necessarily involve a reciprocal line directed from B to A. For this reason, the maximum number of lines which could be present in a directed graph is equal to the total number of pairs that it contains. This is simply calculated as $n(n\text{-}1)$[3]. The density formula for a directed graph, therefore, is l/n(n-1)" (Scott 74).

In a time-stratified network, this formula can be used only in the analysis of in-layer density. For the density of connections between layers, certain modifications need to be made. The following table, Table 7.11, by way of an intellectual exercise, illustrates what happens if we do not take into account what we call maximum reach of a layer. Most of these connections fall in the domain constituting the beyond the reach realm, yet they are still meaningful if we think about indirect ties; all layers are connected to each other indirectly.

Table 7. 11: Hypothetical Density without Time Constraint

---

[3] Because a point cannot be connected to itself, it must be subtracted from the total number of points.

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Here, in the analysis of network density, MR must replace N. In crossectional networks the density is an outcome of N multiplied by N. However, in time-stratified networks, since not all layers reach each other, density is an outcome of *n* (total number of social actors in a layer) multiplied by *mr*(-1) (total number of social actors within the reach of the layer in question, with the exception of self-reflexive ties).

$$Density = \frac{d}{D}$$

Where *d* stands for the present, or the actual density, and *D* stands for the maximum possible density.

$$D = c/n(\text{mr-1})$$

Where *c* stands for the number of connections present in the network, *n* stands for the number of social actors in a layer, and *mr* stands for the number of social actors reachable by *n* (*n*= the layer in question + 4 previous layers + 4 future layers).

This global value of density can be further analyzed by breaking it down to the different domains to which a layer is connected. From this perspective, we can analyze the density of connections within a layer, as well as between layers. The multiplication of the number of social actors in the origin and target layers (which is equal to the highest possible number of connections) divided by the actual number of connections produce the relative measure of density of the network connections between two layers.

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$$D_{Ot} = c/n_O(n_t)$$

Where D_{Ot} stands for density of connection between origin and target layers, *o* stands for origin, and *t* stands for target layer. Or in a more detailed way,

$$D_{in} = c/n(n\text{-}1)$$
$$D_{up1} = c/n(n_{up1})$$
$$D_{up2} = c/n(n_{up2})$$
$$D_{up3} = c/n(n_{up3}) \ ,$$
$$D_{down1} = c/n(n_{down1})$$
$$D_{down2} = c/n(n_{down2})$$
$$D_{down3} = c/n(n_{down3})$$
$$D_{down4} = c/n(n_{down4})$$

It is possible to compare the density of connections of a layer with its neighbors inter-generationally using time series analysis to see if there are enduring patterns.

The following tables contain (1) all possible connections between layers, (2) actual number of connections between layers, (3) density of connections between layers.

Table 7.12: Maximum Possible Network Density

The above table, Table 7.12, provides the total possible number of connections between two layers, which is equal to the highest level of density, assuming that everyone is connected to everyone else in the reachable domains. However, this is never the case in history as the following graph, Graph 7.12, illustrates. There is always a huge discrepancy between what is possible and what is actual in terms of social density

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because it is beyond the limit of social actors to exhaust all the resources they have at their disposal.

Graph 7.12: Maximum Possible Network Density

There is only one exception to this rule: the Prophet. Only the Prophet exhausted all the possibilities. By definition, he was connected to all his Companions. But regarding all other layers, no one even came close to that point. There is an asymmetry in this regard with the beginning and the end of the network. The last layer also has one figure, Suyuti, but only with three connections to hafiz teachers and no hafiz students, at least to the present level of our knowledge.

The actual measures of network density between layers will demonstrate this well. The following tables and graphs not only demonstrate the contrast between what is possible and what is actual but also illustrate the fluctuations in the network density between layers.

Table 7.13: Network Density

Table 7.13 demonstrates that the density of connections also follows the shape of a horizontal S. Density slowly rises with Up3 (Mean = 0.01) and Up2 (Mean = 0.03). It reaches its highest in the connections to Up4 (Mean = 0.08). Suddenly, the figure drops in the middle, when it comes to in-layer density (Mean = 0.02). The figure sharply rises

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again in Down1 (Mean = 1.19) and slowly falls in Down2 (Mean = 0.03) and Down3 (Mean = 0.01). Eventually, it completely wanes in Down4 (Mean = 0).

Graph 7.13: Network Density

These figures are, however, produced by fluctuating values from different layers. Yet, one can notice, by reviewing Graph 7.13, that the fluctuations are not so sharp compared to average and percentage measures we have surveyed earlier.

Table 7.14 and Graph 7.14 break down these aggregate density measures into density of student and teacher connections. Table 7.14 demonstrates that the density of student connections concentrate on the future layers, while Table 7.5 shows that the density of teacher connections concentrates on connections to earlier layers. Density of teacher and student connections within a layer is 0.01.

Table 7.14: Density of Student Connections

Graphs 7.14 and 7.15 allow us to observe the changes in the density of teacher and student connections between layers over 26 generations. Graph 7.14 illustrates the tension between Sdown1 and Sdown2 density. In the beginning, Sdown1 density is higher until layer 11. Beginning from layer 11, Sdown1 density gains supremacy until layer 18 where it sharply falls, but rising again rise again in layers 19 and 20. In layers 18 and 20, Sdown2 density again gains prevalence.

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Graph 7.14: Density of Student Connections

Table 7.15: Density of Teacher Connections

Graph 7.15 shows that there was competition between Tup2 and Tup1 density. In the beginning, density was concentrated on Tup2 until layer 14. Beginning at layer 14, density shifted to Tup1 connections. Density of in-layer teacher connections for 26 layers follows a low degree; the highest degree it reaches is in layer 17 where it becomes higher than the density of Tup2 connections.

Graph 7. 15: Density of Teacher Connections

The connections between layers did not remain equally thick throughout centuries. Earlier layers were more thickly connected to each other. In contrast, later layer were decreasingly less thickly connected to each other, which can be seen as a sign of the vanishing network. Density of connections within a layer always remained extremely low compared with the connections to the preceding and future layers. This is a manifestation of inter-layer brokerage.

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Density: Why are Scholars close to those who are Far from them?

Thus far, the variables used in the analysis treated the connections to earlier and later layers separately. However, it is possible to modify this perspective and look at the ties to one layer, two layers, three layers, and four layers away, whether or not they precede or follow the layer in question.

We have already noticed during the preceding discussion that there is, approximately speaking, symmetry between volume of connections of a layer below and above. For instance, the measures for Up1 connections are near the measures for Down1 connections, and the measures for Up2 connections are closer to Down2 connections. In other words, there is symmetry in volume of the giving, teacher, and receiving, student ties. This symmetry is an important feature of the hadith transmission network and it remains almost unchanged throughout its history except in the states of turbulence in which case there was an imbalance. Yet, there is always a tendency to normalize and reestablish the symmetry. Besides, the layer itself is not the center of the activity. Most of the activity takes place in the interaction between a layer and its distanced neighbors.

The symmetry between measures regarding the connections to equal distances allow us to put these measures together so as to see the volume of connections from a layer to its neighbors in equal distances. I thus created five scopes, indicated by capital S. Each scope encompasses temporal connections to equal distances. In-layer connections constitute $Scope_{in}$ (Sin). Connections to Down1 and Up1 constitute $Scope_1$ (S1). Connections to Down2 and Up2 constitute $Scope_2$ (S2). Connections to Down3 and Up3 constitute $Scope_3$ (S3). Connections to Down4 and Up4 constitute $Scope_4$ (S4).

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$$Scope_{in} = In$$

$$Scope_1 = Up_1 + Down_1$$

$$Scope_2 = Up_1 + Down_1$$

$$Scope_3 = Up_3 + Down_3$$

$$Scope_4 = Up_4 + Down_4$$

We can observe and analyze, from this perspective, how close is a layer to its neighbors at various distances. As Table 7.16 illustrates, a layer is not close to itself, but it is close to those that are far from it generationally. The thickness of the connection between a layer and the adjacent earlier and later layers is just as striking as the weakness of the connection within a layer.

Raw values, displayed in Table 7.16, show the differences between the total number of connections to various network scopes. It is possible to observe the fluctuation in the actual values; however the ratio remains stable. For instance, $Scope_2$ connections are always lower than $Scope_1$ connections. Here again we observe the manifestation of continuity and change.

Table 7. 16: Connections to Distances

Graph 7. 16: Connections to Distances

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Graph 7.16 shows that S2 and S1 connections compete with each other. S2 connections are the highest from layer 6 to 13, while S1 connections are the highest in layers 2 and 3 and from layer 14 to 20. Sin, however, remains low all the time.

The average number of connections per scholar from a layer to the scholars from neighboring scopes also fluctuates, which can be attributed to the historical conditions of the time as well as network processes. However, the ratio between these values remains stable here as well.

Table 7. 17: Average Connections per Scholar to Distances

Table 7.17 shows that, generally speaking, S1 values are the highest (Mean = 4.11) with respect to average number of connections per scholar to a distance. The figures gradually diminish as the distance grows. Average connections per scholars within a layer are again very low. Graph 7.17 reflects the competition between S1 and S2 connections. S2 connections dominate from layer 4 to layer 13 whereas S1 connections dominate from layer 14 to the end. S3 connections are, in general but not always, higher than S1 connections.

Graph 7. 17: Average Connections per Scholar to Distances

A closer examination of the composite values of the variables under consideration captures the continuity better. The percentages for the volume of connections to the scopes remain stable; the $Scope_{in}$ values, which are an indication that in-layer connections

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are the lowest, and the Scope$_2$ values, which are an indication of the volume of connections to the immediate layers below and above are the highest.

Table 7.18 shows that S1 connections are the highest (Mean = 0.4972), whereas the Sin connections are the lowest (Mean = 0.0983). S2 connections are the second highest. Following are sharp decreases in S3 (Mean = 0.0559) and S4 (0.0169).

Table 7. 18: Composition of Connections to Distances

Graph 7.18 depicts the enduring tension between S1 and S2 connections. We can see that S2 connections are the highest from layer 3 to layer 13. From layer 14 until the end, with the exception of layer 22, S1 connections prevail. S3 connections, generally speaking, are higher than Sin connections.

Graph 7. 18: Composition of Connections to Distances

The density of connections between layers also changes over time showing that the inter-layer connections could not be maintained at the same rate. Table 7.19 shows that S1 density is the highest (Mean = 0.09), followed by S2 (Mean = 0.04), Sin (Mean = 0.02), and S3 (Mean = 0.01) density. In-layer density reaches its highest point in layer 17 (0.074), yet from layers 23 to 26, it sharply falls to 0 level. S4 density is also 0.

Table 7.19: Density of Connections to Distances

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Graph 7.19 lays out the tension between S1 and S2 density. S2 density is prevalent from layer 3 to layer 12, whereas S1 density is prevalent from layer 13 to the end, except for layer 16. Sin density also fluctuates and sometimes reaches very high degrees. For instance in layer 16, Sin density is the highest.

Graph 7.19: Density of Connections to Distances

Unit Root Tests and Regression Results

The purpose of this chapter is, as aforementioned, to test the argument of this study on the macro level by using regression analysis. If the argument is true, the expected result from regression analysis is to obtain either insignificant or negative coefficients. As I stated earlier, authority formation in the scholarly community depends on upward and downward connections to past and future generations, rather than in-layer connections. With the purpose of testing this claim by utilizing time series regression models, I employed the measures of the in-layer connections as the dependent variable and the measures of out-layer connections as the independent variable.

The projection of one time series onto another leads to biased results in existence of unit roots. If time series are not stationary, we cannot apply the conventional t and F tests statistics. Thus, after constructing the null hypothesis to test the argument, I first ran stationary tests, then, I conducted the regression analysis with the stationary time series.

The purpose here is to analyze the effect of in-layer connections on the number of student and teacher connections. Measures on total number of connections, average

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number of connections per scholar, percentage of connections to other layers, and the density of connections to other layers will be used in the analysis.

The following table (Table 7.20) shows the list of time series that will be used in the analysis[4]. Brief definitions of the variables are also mentioned. I provided a more detailed discussion of these variables and the way I constructed them in Chapter 5. I will use 22 variables that reflect different aspects of network processes.

Table 7.20: List of Time Series

Testing Models

Time series about in-layer connections serve in the analysis as independent variables. They are variably constructed depending on what type of measure is used in the analysis whether total, average, percentage, or density.

I formed single equation regression models to regress upward and downward connections on inward connections. As we discussed earlier, the majority of upward connections is connections to teachers from earlier layers, whereas the majority of downward connections is connections to students from future layers. Yet, there are upward student connections and downward teacher connections as well. These results

[4] To clarify the reading of the variables, in addition to the definitions provided in the table, I will also provide a key for the way the labels of the series are made up. In the series labels, "t" stands for teacher connections, "s" stands for student connections, "in" stands for in-layer connections, "a" stands for average, "per" stands for percentage, "u" stands for "up" and the number that follows denotes the range of upward connections to the previous generations, "d" stands for "down" and the number that follows denotes the range of downward connections to the subsequent generations.

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enable us to see if there is an effect of in-layer connections on upward and downward connections.

$$C = c + \alpha\ incon + et \qquad \text{eq. (1)}$$

where C stands for connections of a layer and "incon" stands for in-layer connections. Both the dependent and independent variables are variably defined based on (1) type of the connections: student, teacher, or both; (2) direction of the connections: upward, downward, or inward, (3) destination of the connections: up1, up2, up3, up4, in, down1, down2, down3, or down4; and finally (4) type of measure: total, average, percentage, or density.

Since we are using, 4 types of measures (raw, average, percentage, density) there are four groups of testing models with a total number of 12. The first group of models uses the values for the total number of connections between layers. The second group of models uses values for the average number of student and teacher connections per scholar in a given layer. The third group of models uses percentages or composite values for the number of connections between layers. And the fourth group uses values for the density of connections between layers.

1. Group: models on total number of connections

$$Stotal = c + \alpha\ sin + et \qquad \text{eq. (2)}$$

$$Ttotal = c + \alpha\ tin + et \qquad \text{eq. (3)}$$

$$Total = c + \alpha\ stin + et \qquad \text{eq. (4)}$$

2. Group: models on average number of connections

$$Saverage = c + \alpha\ stina + et \qquad \text{eq. (5)}$$

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$$Taverage = c + \alpha\ tina + et \quad \text{eq. (6)}$$

$$Average = c + \alpha\ stina + et \quad \text{eq. (7)}$$

3. Group: models on percentage number of connections

$$Sxper = c + \alpha\ sinper + et \quad \text{eq. (8)}$$

$$Txper = c + \alpha\ tinper + et \quad \text{eq. (9)}$$

$$STxper = c + \alpha\ stinper + et \quad \text{eq. (10)}$$

4. Group: models on density measures

$$Sxden = c + \alpha\ sinden + et \quad \text{eq. (11)}$$

$$Txden = c + \alpha\ tinden + et \quad \text{eq. (12)}$$

$$STxden = c + \alpha\ stinden + et \quad \text{eq. (13)}$$

Where S stands for student connections, T for teacher connections, and ST for both student and teacher connections. And "x" stands for one of these network zones: up1, up2, up3, up4, down1, down2, down3, and down4. For instance {Sdown1} stands for total number of student connections to a subsequent layer. Similarly, {Tup3den} stands for density of teacher connections to three layers up. Consequently, the number of regressions I ran deriving from these models, as we will se below, will vary depending on the number of zones (3 regressions on total, 3 regressions on average, 14 regressions on percentages, and 14 regressions on density measures).

The null hypothesis is as follows

$$H_0: \alpha = 0$$

In other words, in-layer connections have no effect on the number or distribution of student and teacher connections of a layer of prominent scholars.

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The alternative hypothesis is as follows

$$H_1: \alpha \neq 0$$

In other words, in-layer connections have a significant role on the number or distribution of teacher and student connections of a layer of prominent scholars.

Although the initial intention was to conduct all these regression models, it was possible to conduct regression analysis only for the third and fourth groups because the series for the first two groups, as I show below, are not stationary, or, in other words, have a root.

However, I should also note that, if the series are integrated in the same order, they might be cointegrated. Such a cointegration relationship indicates that conventional t and F test statistics results are not biased, even if the variables are not stationary.

Yet, in our case, the series are not integrated in the same order. Therefore, they might not be cointegrated. Consequently, eq. (1) through eq. (6) cannot be conducted since they are neither stationary, nor cointegrated. In this case, dependent variables are non-stationary I(1), integrated of order 1, whereas independent variables are stationary, I(0), integrated of order 0.

Dickey-Fuller Unit Root Tests

Regressions require stationary time series. In other words, to avoid biased estimation results, I conducted first unit root (or stationarity) tests for upward, downward and inward connections of a layer. If the series are not stationary, they may exhibit trends, upward or downward movements. These trends cause spurious regression results.

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The goodness of fit indicator, R^2, would be very high in a regression in which explanatory and dependent variables have unit root. In time series econometrics, a time series that has a unit root is known as a random walk. And a random walk is an example of a non-stationary time series (Gujurati 1995; Dickey and Fuller 1979).

Therefore, before running the above regression models, unit root tests need to be conducted to see if the series are stationary or not. If the series are stationary, then, we can use them in our analysis. Otherwise, they cannot be used in time series analysis.

The following models are used to determine whether or not a time series has a root.

$$Y_t = c + \alpha Yt + et \qquad \text{eq. (14)}$$

By inserting a trend, eq. (13) becomes

$$Y_t = c + \alpha Y_{t-1} + bt + et \qquad \text{eq. (15)}$$

Where *t* stands for trend. If $\alpha = 1$, there is a unit root. In time series econometric analysis, the variables that have unit root are known as non-stationary series. The results are obtained and evaluated as follows.

If computed ι (tau) value is greater than the tabled ι value, then, the variables are said to be stationary[5]. Computed ι (tau) values are presented in Table 7.21. Otherwise, they are accepted as non-stationary variables.

[5] Throughout this study, the test results are based on 0.05 significance level unless otherwise indicated.

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Table 7.21: Tabled t Values

Although the total number of layers constituting the network I analyzed is 26, in the regression, I used only 24 observations from the second to the twenty-fourth layer. The first and the last two layers are not included in the analysis because of the missing data points as a result of tapering network.

Time Series Analyses on Aggregate Measures

I found that the time series in aggregate values are not stationary based on a comparison of the results from Table 7.3 with Table 7.2 that we discussed above. Since these variables are non-stationary, in order to avoid biased results, I decided not to conduct any regression model for these aggregate values. In this case, it is possible to examine the graphs to intuitively arrive some observations. The graphs clearly show that the total number of in-layer connections are insignificant in volume compared to out-layer connections.

Table 7.22: DF Unit Root Tests for Aggregate Series

Time Series Analyses on Averages

Similar to measures in raw values, the average number of connections per scholar from one layer to another layer is also non-stationary, which precludes a non-biased regression analysis. Consequently, I decided not to conduct any regression analysis using

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these series in order to avoid biased results. Yet, by examining the graphs we can intuitively observe that in-layer connections do not play a significant role.

Table 7.23: DF Unit Root Tests for Average Series

Time Series Analyses on Percentages

Unlike the previous measures, which I tested above, that proved to be non-stationary, the measures on percentage distribution of connections are stationary. Statistically speaking, I could not detect any persistent patterns in the measures I tested above, yet, the unit root tests on the measures concerning the percentage distribution of connections show that there are time-independent patterns in the data.

Table 7.24: DF Unit Root Tests for Percentage Series

Since the series on percentages were stationary, I used them in regression analysis. The following table has the results for the regression analysis.

Table 7.25: Regression Results from Equations (8), (9), and (10).

As seen in the above table, with respect to student connections, since computed F values are less than the tabled F value of 4.30 (df 1,22), we accept the null hypotheses that {inper} does not have any affect on the dependent variables. Or one can say, since

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the α value 0.05, which is used throughout this study, is less than significance levels our regression models listed above, the null hypothesis is accepted. The null hypothesis is that the coefficient of {inper} is equal to zero. In other words, the average change in dependent variables cannot be explained by the average changes in independent variable, {inper}.

As for the expected signs in the models regarding student connections, three out of six regressions have negative signs whereas the other three regressions have positive signs. Since the results of all regressions were already found insignificant, the above table is supportive of the argument of this study.

Similarly, regarding teacher connections, only one regression out of eight regressions gives a significant result for {tinper}. On the other hand, the coefficient of {tinper} on {tup2per} is negative. Therefore, the results in the above table support the argument of this study.

Time Series Analyses on Density Measures

The time series on density measures are stationary. Table 7.26 demonstrates Dickey-Fuller stationary test results. That means these series can be used in regression analysis.

Table 7.26: DF Unit Root Test for Density Series

As displayed by Table 7.26, computed F values of five out of six regressions regarding student connections are less than the tabled F value of 4.30. Then, we accept

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the null hypothesis for student connections. Only one out of six regressions is significant. The series {sinden} has some explanatory power on {sdown3d}. All other results are supportive of the model since the coefficients of the regressions are insignificant.

Table 7.26: Regression Results from Equations (11), (12), and (13).

Regarding teacher connections, computed F values of six out of eight regressions are less than the table F value of 4.30 at the 0.05 significance level. One can accept the null hypothesis that {tind} has no explanatory power on independent variables. The variable {tup2d} and {tup1d} can be explained by {tind} at 0.05 significance level. {tind}, however, has a negative coefficient on {tup2d} whereas it has a positive coefficient on {tup1d}. I can therefore conclude that the results from the above table support the model as well.

I tested the argument of this study using 24 layer network connections in regression analysis. Before testing the argument, I conducted Dickey-Fuller unit root tests and concluded that the series regarding total and average number of connections are not stationary whereas the series regarding percentage and density of connections are stationary. Using these stationary variables, I ran regression analysis. The result is that the argument holds in the majority of regressions. Out of thirty regressions, the argument holds in twenty-eight cases. The failure of the argument in two cases might be attributed to such factors as the type of the data or sample period used in the models. The data or sample period by itself may cause statistical rejection at a certain level of significance although the argument might be correct. Overall, I might conclude that the statistical test

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results support the argument that in-layer connections either do not have any role on authority formation, or negatively influence it.

The LRS Effect on the Macro-level

The above analyses indicated that scholars from a layer avoid connections with their fellows from the same layer, a pattern that persisted over a millennium. But why? Why are the scholars from a layer close to those who are far from them instead of their friends from the same layer? I propose here that the answer lies not in the social but in the linguistic domain. Only by recognizing the interplay between social, linguistic, and metalinguistic patterns can we explain this phenomenon. As I discussed in Chapter 2, the recent trend in social and literary theory to couple the long isolated discursive and social structures has already prepared the ground for the line of argument I develop here.

I suggest that the generative mechanism of the particular network configuration that we have identified above using network concepts along with time series analysis is an unintended outcome of language use on the part of scholars. Ties to fellows from the same layer are avoided because this would increase the levels of reported speech which would be an indication of increased level of dependence on discourse mediators. Increased levels of reported speech can only be avoided by establishing connections to layers far from one's own. The logic of investment on particular network ties is thus rooted in the sociolinguistic mechanisms.

Narrative not only disseminates through a social network, but it also shapes the network. Language configures the network as it travels through it. The reductionist view to the social network (as merely a means of transmission) and language (as merely a

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means of reference and communication) misses the structure of the relationship between these two types of structures. The relationship between social network and social narrative is extremely intricate and organic. The dynamics of language use are in constant interplay with the dynamics of social networks. Uncoupling them from each other can only be justified by the purpose of demonstrating how a metastructure evolves from the seemingly unrelated literary and social processes.

The metastructure produced by discursive and social patterns is the key to an understanding of authority formation in the scholarly community. The hadith transmission network reflects how these literary and social structures interact in the process of authority formation. Metalanguage implicitly configures social networks while its own existence and operation are completely contingent on networks. The above analysis provides an evidence for the circular causal process at work between social and literary structures.

Conclusion

The stratum of huffaz gained unparalleled authority within their community not because they were closely connected to each other but, paradoxically, because they were not closely connected to each other. This paradox finds its explanation in the metalinguistic processes. The argument is tested over 26 layers whose network is analyzed here. Time series analysis armed with network and discourse analyses concepts helped us discover these patterns in the unstable network of huffaz with fluid relations.

The above analysis showed that the cross-temporal structures, but not the synchronic structures, are responsible for the formation of authority on the macro level.

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Giving priority to the out-group connections enabled the stratum of huffaz to gain social prominence as a group and shape the paradigm of their discipline.

Inter-layer brokerage characterizes the network of prominent scholars from all layers analyzed. It helped the stratum of huffaz gain authority and transfer it to their students whom they recruited from among the youngest layers. Inter-layer brokerage thus can be taken to be responsible for the production and reproduction of authority, and hence social inequality, in the network of huffaz. This claim could be nullified if there were some layers of huffaz with extensive in-layer connections. Yet, the above analysis documented that there is not even one such layer of huffaz. The above analysis also suggested that in-layer connections are not significantly related to the total number of student and teacher connections.

These findings provide additional evidence on the explanatory power of weak ties (Granevetter) and social capital in social networks (Coleman 1990, Burt 1995). The network of huffaz stratum in all 26 layers are characterized by extensive number of weak ties which I take to be responsible for their unparalleled authority in the entire community of hadith transmitters despite the minute size of their stratum. Implicit in this line of argument is that what counts in the process of authority formation is not only what is commonly called 'human capital,' such as knowledge and skills but also, and most importantly, what is commonly known as 'social capital,' such as a particular position in a social network.

In the network of huffaz, the former is closely associated with the later, yet its usage is contingent upon the existence of the former. In other words, in the process of authority formation, social actors are constrained not only by the content of what they

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have to say but also by their network position which directly bears upon the former. Metaphorically speaking, in the market of narrative, a client critically reflects upon what the patron has to say, and more importantly, the network configuration in which he is embedded. In the presence of a teller who is closer to the original source, listeners would not be attracted to the one with a lengthy chain of narrative. Here lies the long ignored link between the chains of narrative and the chains of opportunity (White 1970) this study exposed.

The findings also confirm the perspective of linking social and discursive patterns *via* metalanguage. Silverstein, White, Shotter, and Habermas, as I discussed in greater detail in Chapter 2, successfully used this method in displaying the uninterrupted interaction between speech and action. Employing the complex structures newly discovered in language use help us to explore further the sophisticated patterns of interaction between discursive and social relations.

Most important is that the circular relationship between literary and social structures is laid bare in the interrelations of 26 layers. The above analysis showed that, on the one hand, reported speech and narrative produce and reproduce social network, yet, on the other hand, survival of narrative is contingent upon the endurance of social network and social relations. The rise and the demise of the huffaz stratum tell us that a dynamic social organization requires a dynamic social narrative; and a moribund social organization means a moribund social narrative.

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TABLE 6.1: A BIRD'S EYE VIEW							
L	N	Stot	Ttot	Tot	Save	Tave	Totave
L1	1	23	0	23	23.00	0.00	23.00
L2	23	335	40	375	14.57	1.74	16.30
L3	42	178	162	340	4.24	3.86	8.10
L4	30	238	138	376	7.93	4.60	12.53
L5	58	610	334	944	10.52	5.76	16.28
L6	78	778	481	1259	9.97	6.17	16.14
L7	81	732	466	1198	9.04	5.75	14.79
L8	106	812	619	1431	7.66	5.84	13.50
L9	130	1104	958	2062	8.49	7.37	15.86
L10	106	541	955	1496	5.10	9.01	14.11
L11	117	530	900	1430	4.53	7.69	12.22
L12	77	204	413	617	2.65	5.36	8.01
L13	79	185	580	765	2.34	7.34	9.68
L14	74	163	297	460	2.20	4.01	6.22
L15	31	78	92	170	2.52	2.97	5.48
L16	46	103	111	214	2.24	2.41	4.65
L17	18	55	72	127	3.06	4.00	7.06
L18	25	69	59	128	2.76	2.36	5.12
L19	26	39	77	116	1.50	2.96	4.46
L20	12	19	16	35	1.58	1.33	2.92
L21	10	17	23	40	1.70	2.30	4.00
L22	23	19	30	49	0.83	1.30	2.13
L23	11	11	6	17	1.00	0.55	1.55
L24	9	12	12	24	1.33	1.33	2.67
L25	12	1	12	13	0.08	1.00	1.08
L26	1	0	3	3	0.00	3.00	3.00
TTOTAL	1226	6856	6856	13712	5.59	5.59	11.18
Mean	47.15	263.69	263.69	527.38	0.22	0.22	0.43

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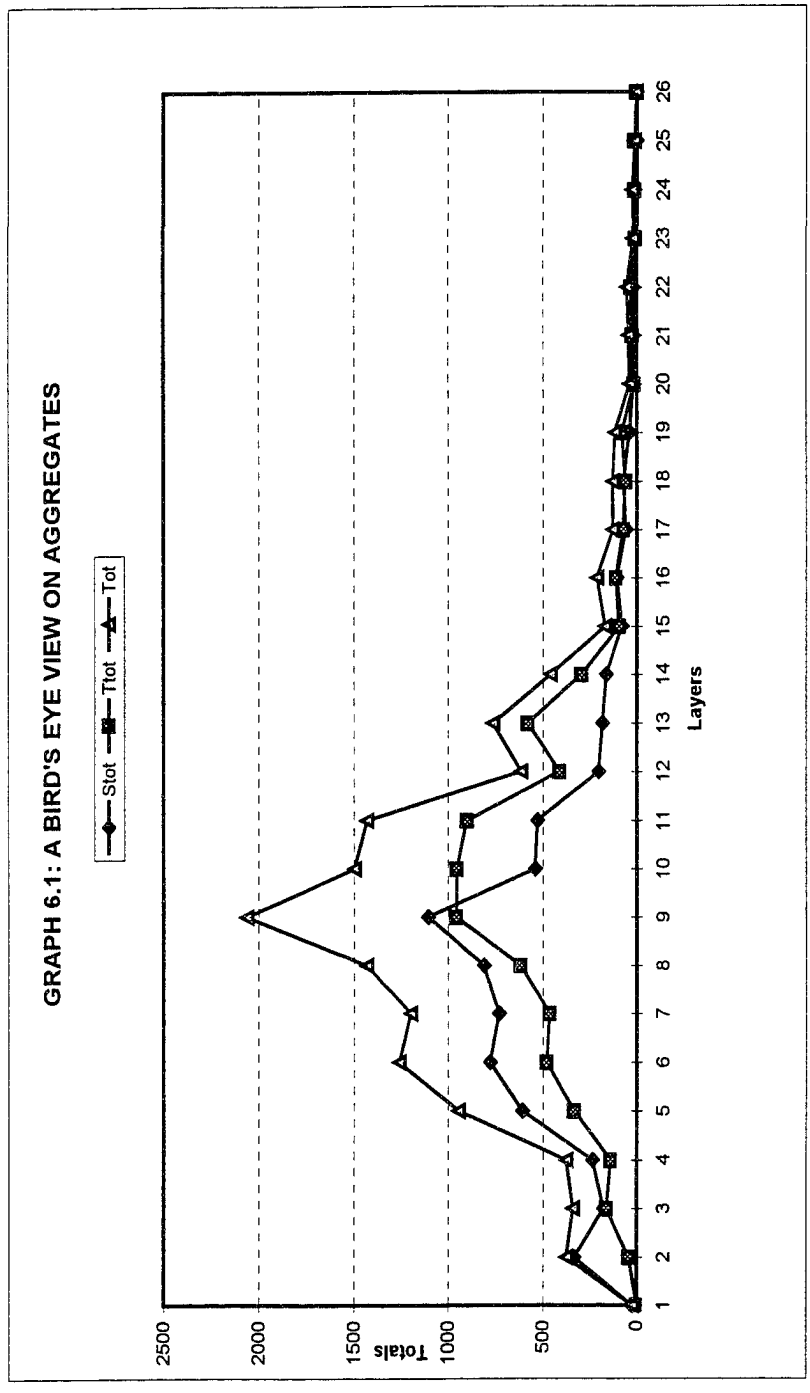

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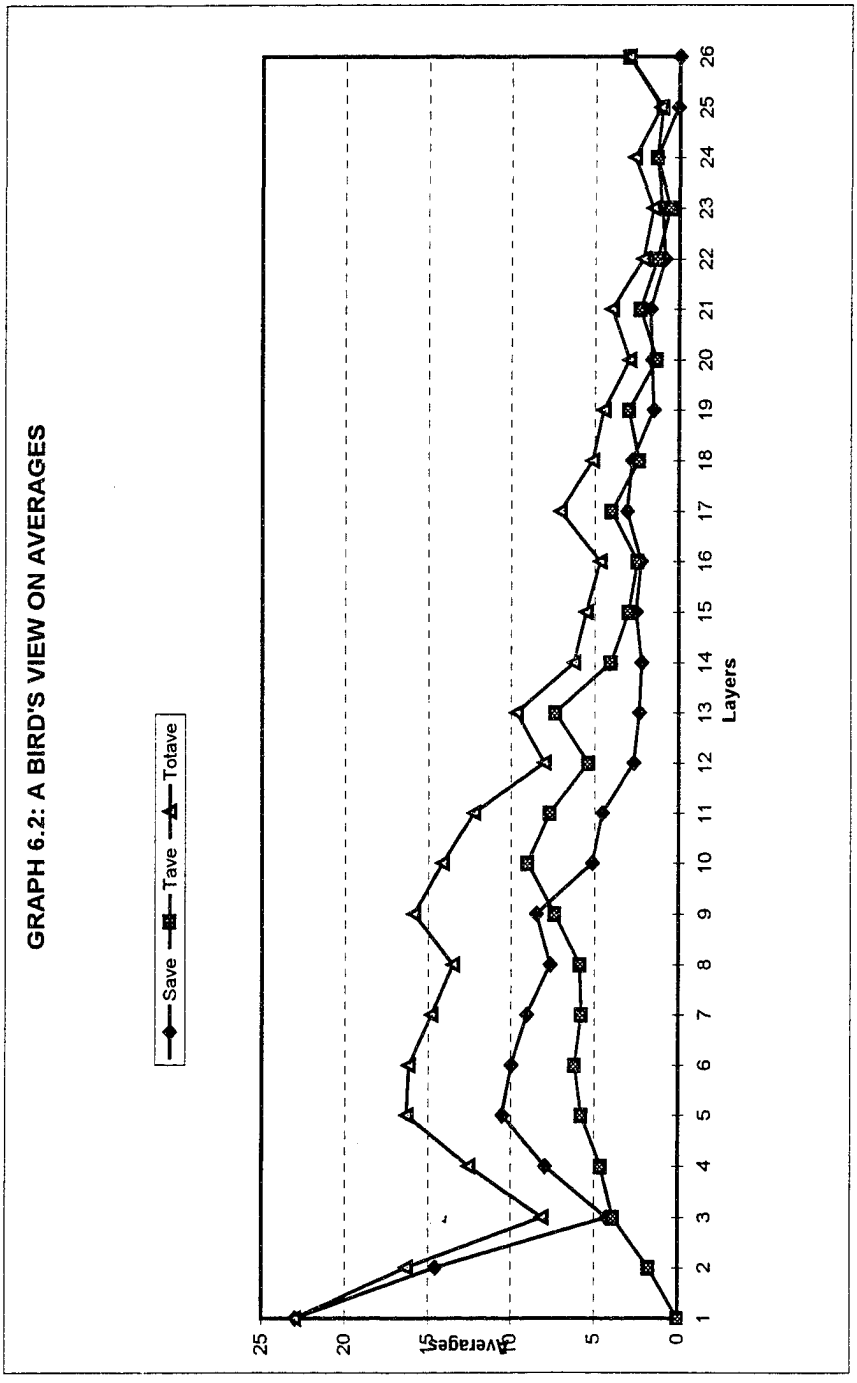

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TABLE 6.2: CONNECTIONS

LNO	N	UP4	UP3	UP2	UP1	IN	DOWN1	DOWN2	DOWN3	DOWN4	TOTAL
L1	1	0	0	0	0	0	23	0	0	0	23
L2	23	0	0	0	23	32	157	105	57	1	375
L3	42	0	0	0	157	10	31	123	19	0	340
L4	30	0	0	105	31	2	126	110	2	0	376
L5	58	0	57	123	126	42	274	279	42	1	944
L6	78	1	19	110	274	122	184	413	135	1	1259
L7	81	0	2	279	184	34	43	598	55	3	1198
L8	106	0	42	413	43	30	277	586	40	0	1431
L9	130	1	135	598	277	60	283	619	86	3	2062
L10	106	1	55	586	283	88	212	227	42	2	1496
L11	117	3	40	619	212	64	96	372	23	1	1430
L12	77	0	86	227	96	6	136	64	2	0	617
L13	79	3	42	372	136	58	148	4	1	1	765
L14	74	2	23	64	148	134	67	14	4	4	460
L15	31	1	2	4	67	28	65	3	0	0	170
L16	46	0	1	14	65	66	56	12	0	0	214
L17	18	1	4	3	56	24	34	3	2	0	127
L18	25	4	0	12	34	18	53	5	1	1	128
L19	26	0	0	3	53	34	6	14	6	0	116
L20	12	0	2	5	6	6	12	3	1	0	35
L21	10	0	1	14	12	4	7	2	0	0	40
L22	23	1	6	3	7	18	7	6	1	0	49
L23	11	0	1	2	7	0	6		0	0	17
L24	9	0	0	6	6	0	11	1	0	0	24
L25	12	0	0	1	11	0	1	0	0	0	13
L26	1	1	0	1	1	0	0	0	0	0	3
TOTAL	1226	19	518	3564	2315	880	2315	3563	519	18	13712
Mean	47.15	0.73	19.92	137.08	89.04	33.85	89.04	137.04	19.96	0.69	527.38

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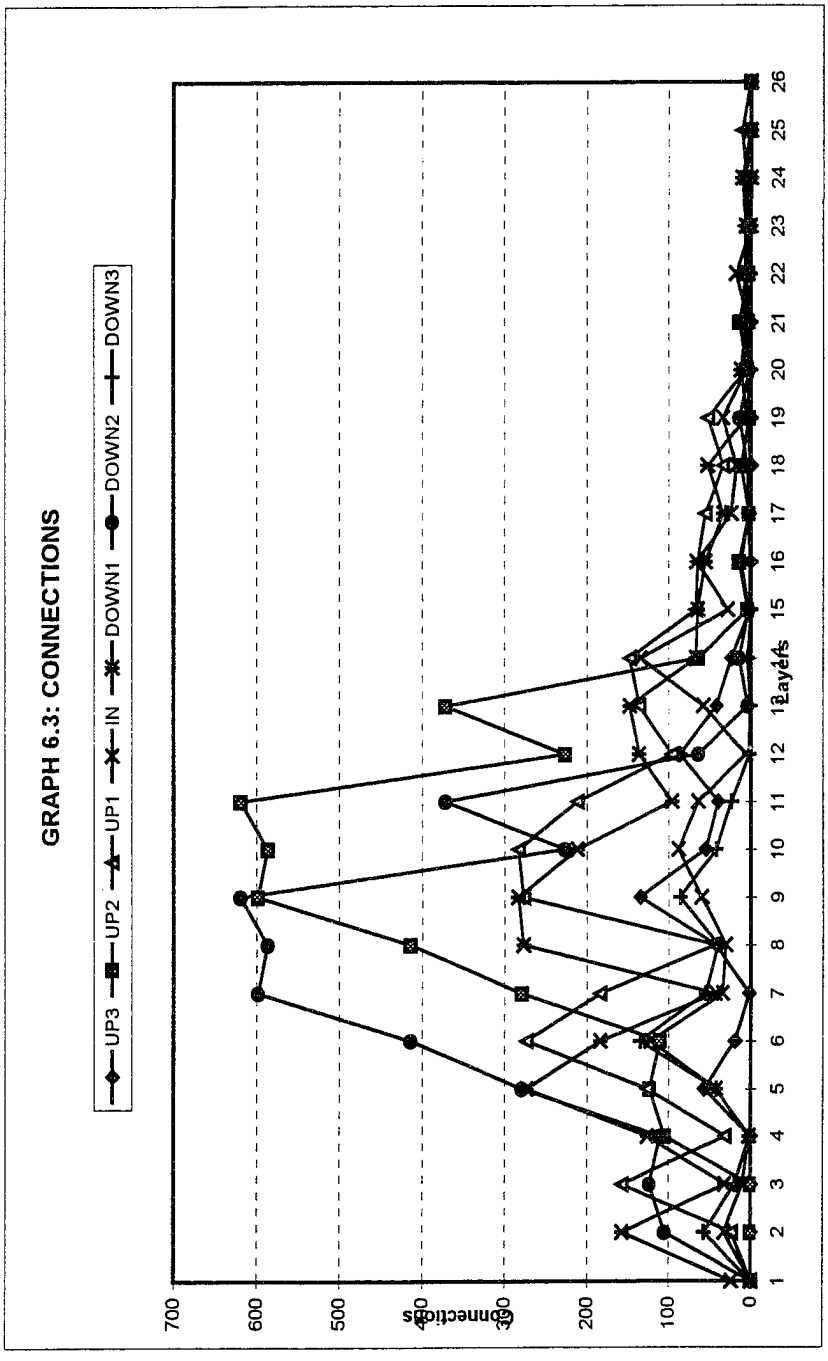

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TABLE 6.3: STUDENT CONNECTIONS

LNO	N	SUP4	SUP3	SUP2	SUP1	SIN	SDOWN1	SDOWN2	SDOWN3	SDOWN4	Stot
L1	1					0	23	0	0	0	23
L2	23				0	16	156	105	57	1	335
L3	42			0	1	5	31	122	19	0	178
L4	30		0	0	0	1	125	110	2	0	238
L5	58	0	0	1	1	21	268	276	42	1	610
L6	78	0	0	0	6	61	164	411	135	1	778
L7	81	0	0	3	20	17	38	596	55	3	732
L8	106	0	0	2	5	15	190	561	39	0	812
L9	130	0	0	2	87	30	279	617	86	3	1104
L10	106	0	0	25	4	44	197	227	42	2	541
L11	117	0	1	2	15	32	87	369	23	1	530
L12	77	0	0	0	9	3	131	59	2	0	204
L13	79	0	0	3	5	29	142	4	1	1	185
L14	74	0	0	5	6	67	65	13	4	3	163
L15	31	0	0	0	2	14	60	2	0	0	78
L16	46	0	0	1	5	33	52	12	0	0	103
L17	18	0	0	1	4	12	33	3	2	0	55
L18	25	1	0	0	1	9	52	4	1	1	69
L19	26	0	0	0	1	17	4	11	6	0	39
L20	12	0	0	1	2	3	9	3	1	0	19
L21	10	0	0	3	3	2	7	2	0	0	17
L22	23	0	0	0	0	9	3	6	1		19
L23	11	0	0	0	4	0	6				11
L24	9	0	0	0	0	0	11	1			12
L25	12	0	0	0	0	0	1				1
L26	1	0	0	0	0	0					
TOTAL	1226	1	1	49	181	440	2134	3514	518	17	6856
Mean	47.15	0.04	0.04	1.88	6.96	16.92	82.08	135.15	19.92	0.65	263.69

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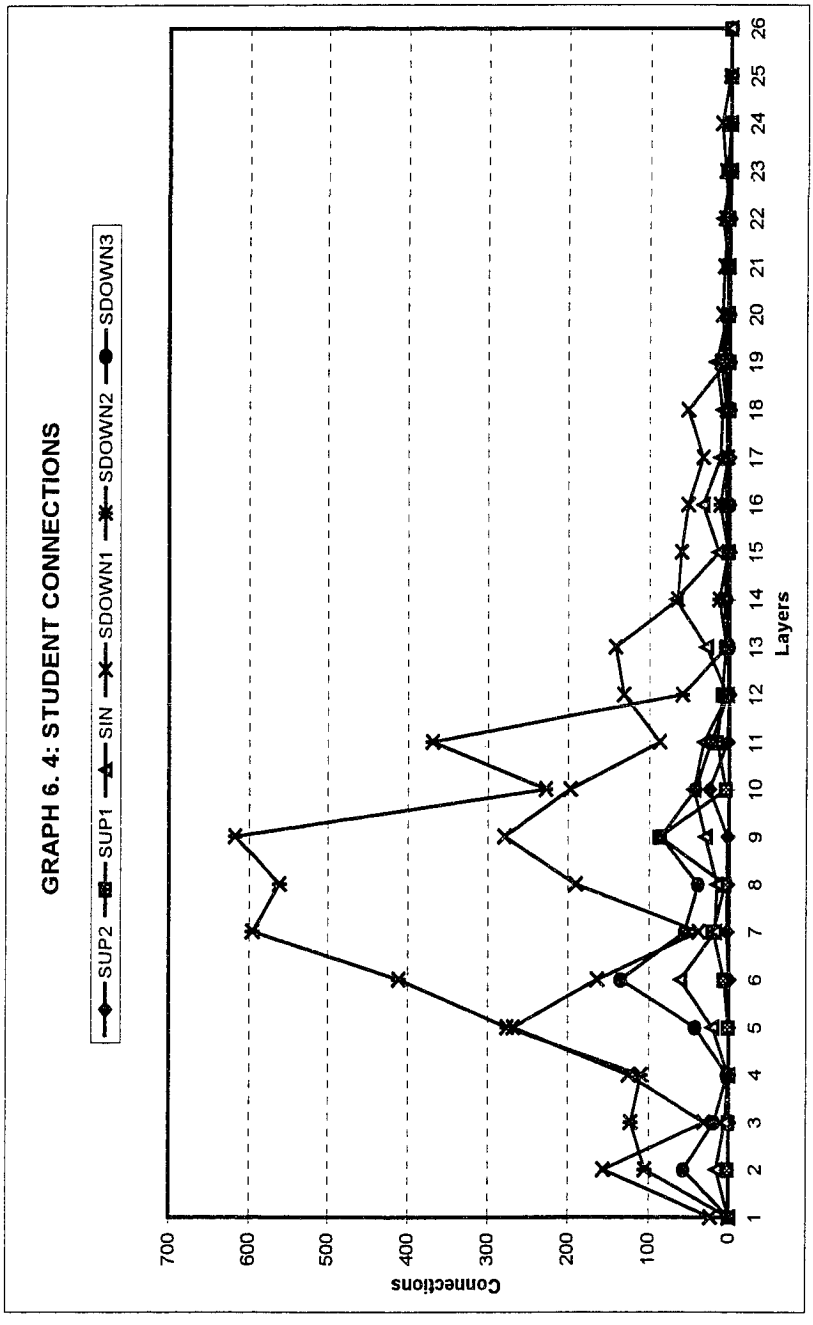

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TABLE 6.4: TEACHER CONNECTIONS

LNO	N	TUP4	TUP3	TUP2	TUP1	TIN	TDOWN1	TDOWN2	TDOWN3	TDOWN4	TTOTAL
L1	1					0	0	0	0	0	0
L2	23				23	16	1	0	0	0	40
L3	42			0	156	5	0	1	0	0	162
L4	30		0	105	31	1	1	0	0	0	138
L5	58	0	57	122	125	21	6	3	0	0	334
L6	78	1	19	110	268	61	20	2	0	0	481
L7	81	0	2	276	164	17	5	2	0	0	466
L8	106	0	42	411	38	15	87	25	1	0	619
L9	130	1	135	596	190	30	4	2	0	0	958
L10	106	1	55	561	279	44	15	0	0	0	955
L11	117	3	39	617	197	32	9	3	0	0	900
L12	77	0	86	227	87	3	5	5	0	0	413
L13	79	3	42	369	131	29	6	0	0	0	580
L14	74	2	23	59	142	67	2	1	0	1	297
L15	31	1	2	4	65	14	5	1	0	0	92
L16	46	0	1	13	60	33	4	0	0	0	111
L17	18	1	4	2	52	12	1	0	0	0	72
L18	25	3	0	12	33	9	1	1	0	0	59
L19	26	0	0	3	52	17	2	3	0	0	77
L20	12	0	2	4	4	3	3	0	0	0	16
L21	10	0	1	11	9	2	0	0	0	0	23
L22	23	1	6	3	7	9	4	0	0		30
L23	11	0	1	2	3	0	0				6
L24	9	0	0	6	6	0	0				12
L25	12	0	0	1	11	0					12
L26	1	1		1	1	0					3
TOTAL	1226	18	517	3515	2134	440	181	49	1	1	6856
Mean	47.15	0.69	19.88	135.19	82.08	16.92	6.96	1.88	0.04	0.04	263.69

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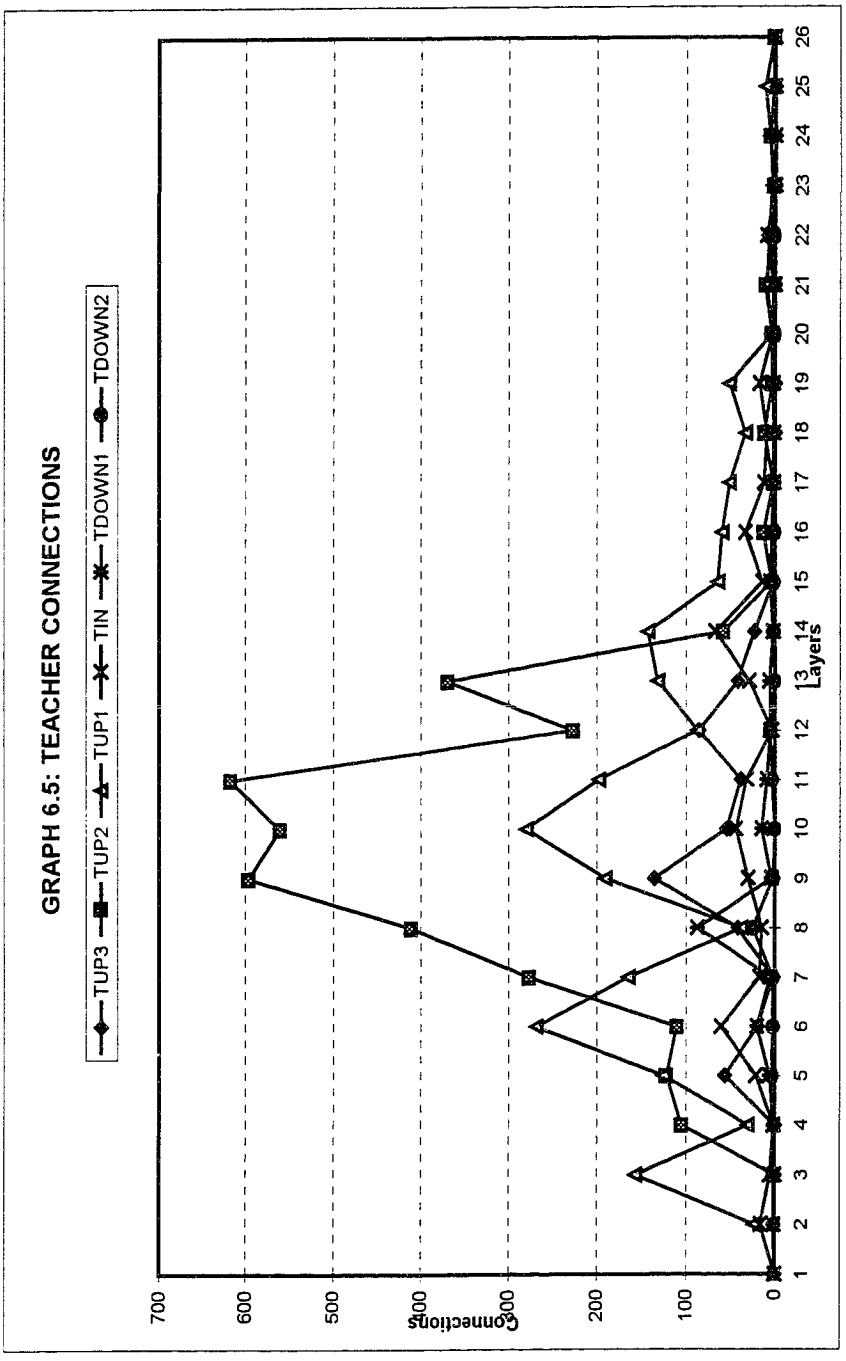

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TABLE 6.5: AVERAGE CONNECTIONS PER SCHOLAR

LNO	N	UP4A	UP3A	UP2A	UP1A	INA	DOWN1A	DOWN2A	DOWN3A	DOWN4A	TOTAL
L1	1	0.000	0.000	0.000	0.000	0.000	23.000	0.000	0.000	0.000	23.000
L2	23	0.000	0.000	0.000	1.000	1.391	6.826	4.565	2.478	0.043	16.304
L3	42	0.000	0.000	0.000	3.738	0.238	0.738	2.929	0.452	0.000	8.095
L4	30	0.000	0.000	3.500	1.033	0.067	4.200	3.667	0.067	0.000	12.533
L5	58	0.000	0.983	2.121	2.172	0.724	4.724	4.810	0.724	0.017	16.276
L6	78	0.013	0.244	1.410	3.513	1.564	2.359	5.295	1.731	0.013	16.141
L7	81	0.000	0.025	3.444	2.272	0.420	0.531	7.383	0.679	0.037	14.790
L8	106	0.000	0.396	3.896	0.406	0.283	2.613	5.528	0.377	0.000	13.500
L9	130	0.008	1.038	4.600	2.131	0.462	2.177	4.762	0.662	0.023	15.862
L10	106	0.009	0.519	5.528	2.670	0.830	2.000	2.142	0.396	0.019	14.113
L11	117	0.026	0.342	5.291	1.812	0.547	0.821	3.179	0.197	0.009	12.222
L12	77	0.000	1.117	2.948	1.247	0.078	1.766	0.831	0.026	0.000	8.013
L13	79	0.038	0.532	4.709	1.722	0.734	1.873	0.051	0.013	0.013	9.684
L14	74	0.027	0.311	0.865	2.000	1.811	0.905	0.189	0.054	0.054	6.216
L15	31	0.032	0.065	0.129	2.161	0.903	2.097	0.097	0.000	0.000	5.484
L16	46	0.000	0.022	0.304	1.413	1.435	1.217	0.261	0.000	0.000	4.652
L17	18	0.056	0.222	0.167	3.111	1.333	1.889	0.167	0.111	0.000	7.056
L18	25	0.160	0.000	0.480	1.360	0.720	2.120	0.200	0.040	0.040	5.120
L19	26	0.000	0.000	0.115	2.038	1.308	0.231	0.538	0.231	0.000	4.462
L20	12	0.000	0.167	0.417	0.500	0.500	1.000	0.250	0.083	0.000	2.917
L21	10	0.000	0.100	1.400	1.200	0.400	0.700	0.200	0.000	0.000	4.000
L22	23	0.043	0.261	0.130	0.304	0.783	0.304	0.261	0.043	0.000	2.130
L23	11	0.000	0.091	0.182	0.636	0.000	0.545		0.000	0.000	1.545
L24	9	0.000	0.000	0.667	0.667	0.000	1.222	0.111	0.000	0.000	2.667
L25	12	0.000	0.000	0.083	0.917	0.000	0.083	0.000	0.000	0.000	1.083
L26	1	1.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000	3.000
TOTAL	1226	1.41	6.43	43.39	41.02	16.53	65.94	47.41	8.36	0.27	230.87
Mean	47.15	0.05	0.25	1.67	1.58	0.64	2.54	1.82	0.32	0.01	8.88

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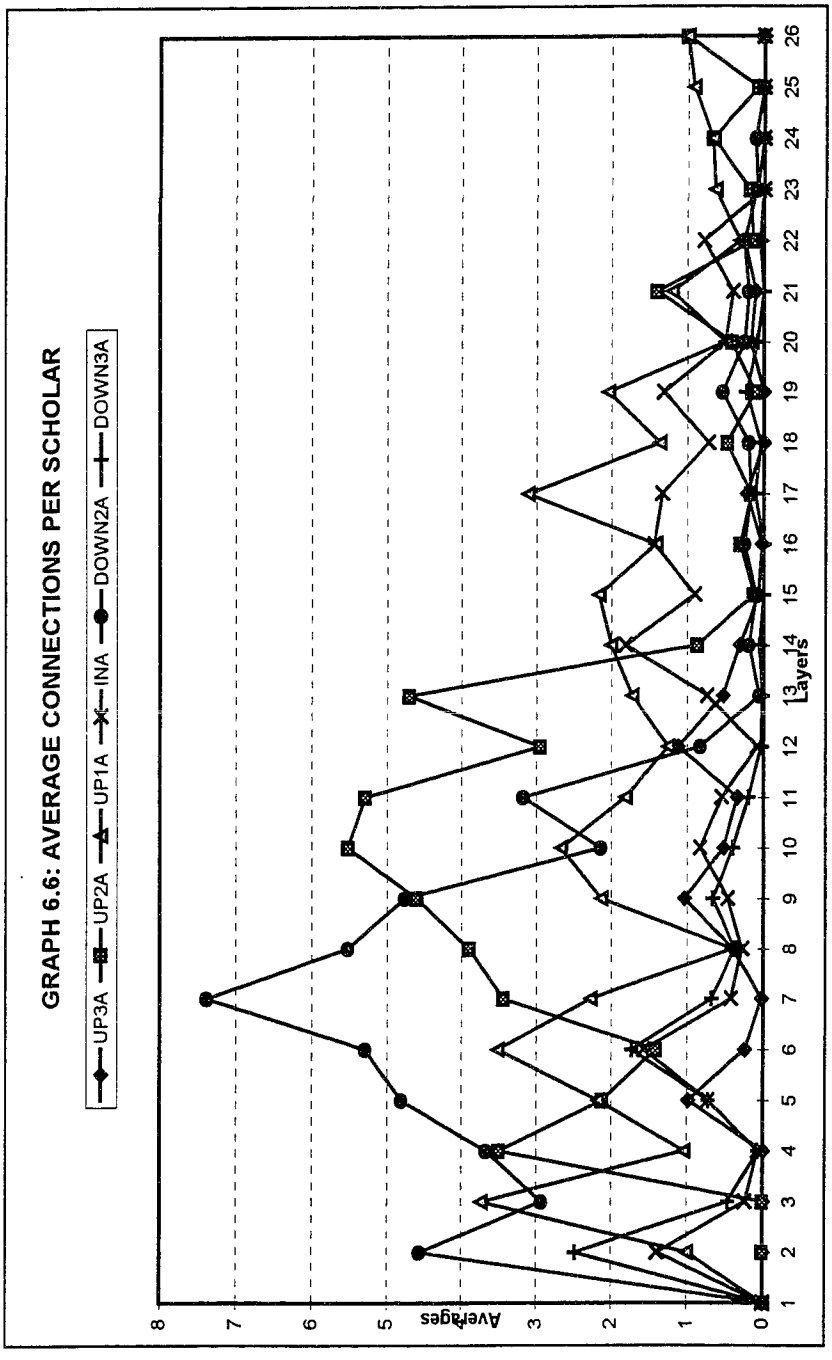

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TABLE 6.6: AVERAGE STUDENT CONNECTIONS PER SCHOLAR

LNO	N	SUP4A	SUP3A	SUP2A	SUP1A	SINA	SDOWN1A	SDOWN2A	SDOWN3A	SDOWN4A	STOTAL
L1	1	0.000	0.000	0.000	0.000	0.000	0 (23)	0.000	0.000	0.000	23.000
L2	23	0.000	0.000	0.000	0.000	0.696	6.783	4.565	2.478	0.043	14.565
L3	42	0.000	0.000	0.000	0.024	0.119	0.738	2.905	0.452	0.000	4.238
L4	30	0.000	0.000	0.000	0.000	0.033	4.167	3.667	0.067	0.000	7.933
L5	58	0.000	0.000	0.017	0.017	0.362	4.621	4.759	0.724	0.017	10.517
L6	78	0.000	0.000	0.000	0.077	0.782	2.103	5.269	1.731	0.013	9.974
L7	81	0.000	0.000	0.037	0.247	0.210	0.469	7.358	0.679	0.037	9.037
L8	106	0.000	0.000	0.019	0.047	0.142	1.792	5.292	0.368	0.000	7.660
L9	130	0.000	0.000	0.015	0.669	0.231	2.146	4.746	0.662	0.023	8.492
L10	106	0.000	0.000	0.236	0.038	0.415	1.858	2.142	0.396	0.019	5.104
L11	117	0.000	0.009	0.017	0.128	0.274	0.744	3.154	0.197	0.009	4.530
L12	77	0.000	0.000	0.000	0.117	0.039	1.701	0.766	0.026	0.000	2.649
L13	79	0.000	0.000	0.038	0.063	0.367	1.797	0.051	0.013	0.013	2.342
L14	74	0.000	0.000	0.068	0.081	0.905	0.878	0.176	0.054	0.041	2.203
L15	31	0.000	0.000	0.000	0.065	0.452	1.935	0.065	0.000	0.000	2.516
L16	46	0.000	0.000	0.022	0.109	0.717	1.130	0.261	0.000	0.000	2.239
L17	18	0.000	0.000	0.056	0.222	0.667	1.833	0.167	0.111	0.000	3.056
L18	25	0.040	0.000	0.000	0.040	0.360	2.080	0.160	0.040	0.040	2.760
L19	26	0.000	0.000	0.000	0.038	0.654	0.154	0.423	0.231	0.000	1.500
L20	12	0.000	0.000	0.083	0.167	0.250	0.750	0.250	0.083	0.000	1.583
L21	10	0.000	0.000	0.300	0.300	0.200	0.700	0.200	0.000	0.000	1.700
L22	23	0.000	0.000	0.000	0.000	0.391	0.130	0.261	0.043	0.000	0.826
L23	11	0.000	0.000	0.000	0.364	0.000	0.545	0.091		0.000	1.000
L24	9	0.000	0.000	0.000	0.000	0.000	1.222	0.111	0.000	0.000	1.333
L25	12	0.000	0.000	0.000	0.000	0.000	0.083	0.000	0.000	0.000	0.083
L26	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	1226	0.04	0.01	0.91	2.81	8.27	40.36	46.84	8.35	0.25	130.84
Mean	47.15	0.00	0.00	0.03	0.11	0.32	1.55	1.80	0.32	0.01	5.03

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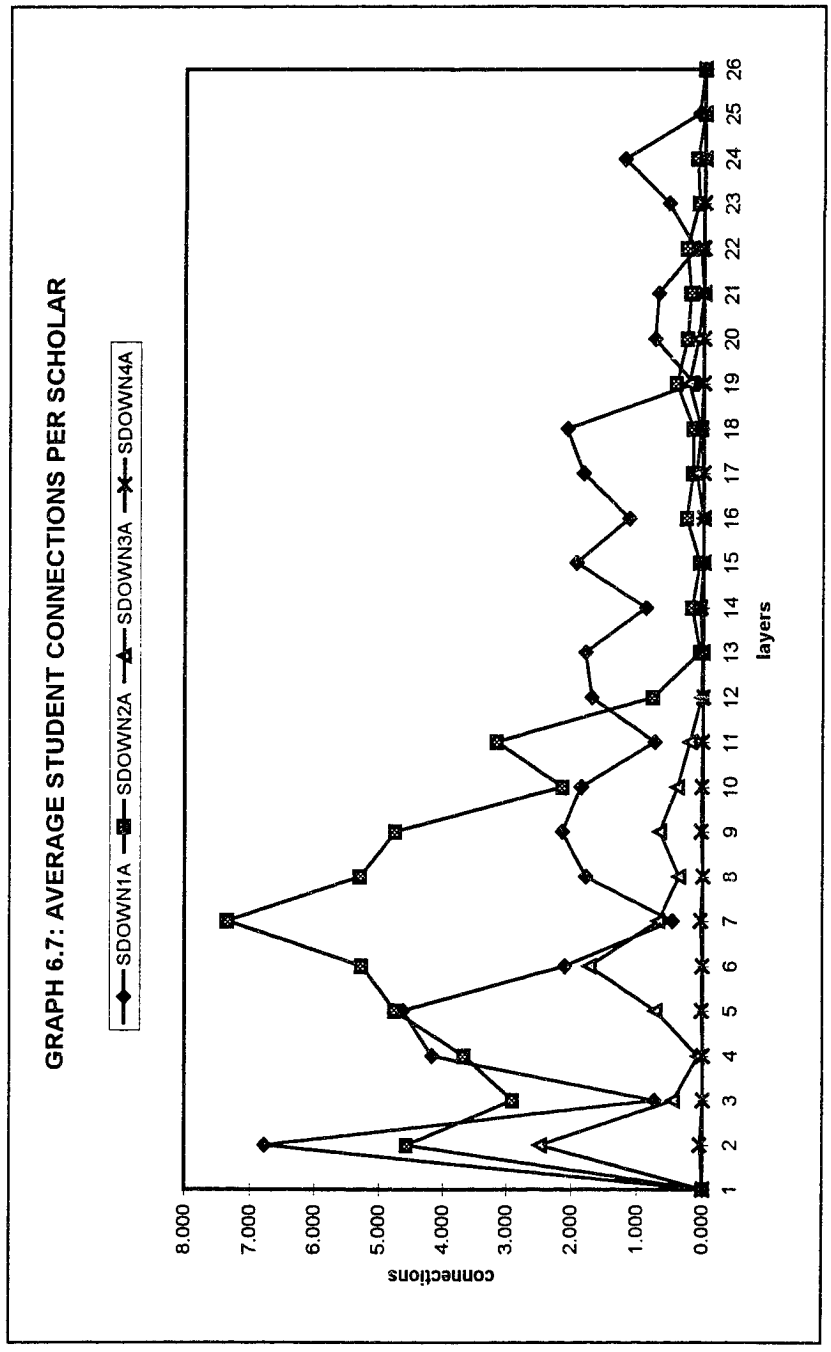

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TABLE 6.7: AVERAGE TEACHER CONNECTIONS PER SCHOLAR

LNO	N	TUP4A	TUP3A	TUP2A	TUP1A	TINA	TDOWN1A	TDOWN2A	TDOWN3A	TDOWN4A	TTOTA
L1	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
L2	23	0.000	0.000	0.000	1.000	0.696	0.043	0.000	0.000	0.000	1.739
L3	42	0.000	0.000	0.000	3.714	0.119	0.000	0.024	0.000	0.000	3.857
L4	30	0.000	0.000	3.500	1.033	0.033	0.033	0.000	0.000	0.000	4.600
L5	58	0.000	0.983	2.103	2.155	0.362	0.103	0.052	0.000	0.000	5.759
L6	78	0.013	0.244	1.410	3.436	0.782	0.256	0.026	0.000	0.000	6.167
L7	81	0.000	0.025	3.407	2.025	0.210	0.062	0.025	0.000	0.000	5.753
L8	106	0.000	0.396	3.877	0.358	0.142	0.821	0.236	0.009	0.000	5.840
L9	130	0.008	1.038	4.585	1.462	0.231	0.031	0.015	0.000	0.000	7.369
L10	106	0.009	0.519	5.292	2.632	0.415	0.142	0.000	0.000	0.000	9.009
L11	117	0.026	0.333	5.274	1.684	0.274	0.077	0.026	0.000	0.000	7.692
L12	77	0.000	1.117	2.948	1.130	0.039	0.065	0.065	0.000	0.000	5.364
L13	79	0.038	0.532	4.671	1.658	0.367	0.076	0.000	0.000	0.000	7.342
L14	74	0.027	0.311	0.797	1.919	0.905	0.027	0.014	0.000	0.014	4.014
L15	31	0.032	0.065	0.129	2.097	0.452	0.161	0.032	0.000	0.000	2.968
L16	46	0.000	0.022	0.283	1.304	0.717	0.087	0.000	0.000	0.000	2.413
L17	18	0.056	0.222	0.111	2.889	0.667	0.056	0.000	0.000	0.000	4.000
L18	25	0.120	0.000	0.480	1.320	0.360	0.040	0.040	0.000	0.000	2.360
L19	26	0.000	0.000	0.115	2.000	0.654	0.077	0.115	0.000	0.000	2.962
L20	12	0.000	0.167	0.333	0.333	0.250	0.250	0.000	0.000	0.000	1.333
L21	10	0.000	0.100	1.100	0.900	0.200	0.000	0.000	0.000	0.000	2.300
L22	23	0.043	0.261	0.130	0.304	0.391	0.174	0.000	0.000	0.000	1.304
L23	11	0.000	0.091	0.182	0.273	0.000	0.000	0.000		0.000	0.545
L24	9	0.000	0.000	0.667	0.667	0.000	0.000	0.000	0.000	0.000	1.333
L25	12	0.000	0.000	0.083	0.917	0.000	0.000	0.000	0.000	0.000	1.000
L26	1	1.000	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000	3.000
TOTAL	1226	1.37	6.42	42.48	38.21	8.27	2.58	0.67	0.01	0.01	100.02
Mean	47.15	0.05	0.25	1.63	1.47	0.32	0.10	0.03	0.00	0.00	3.85

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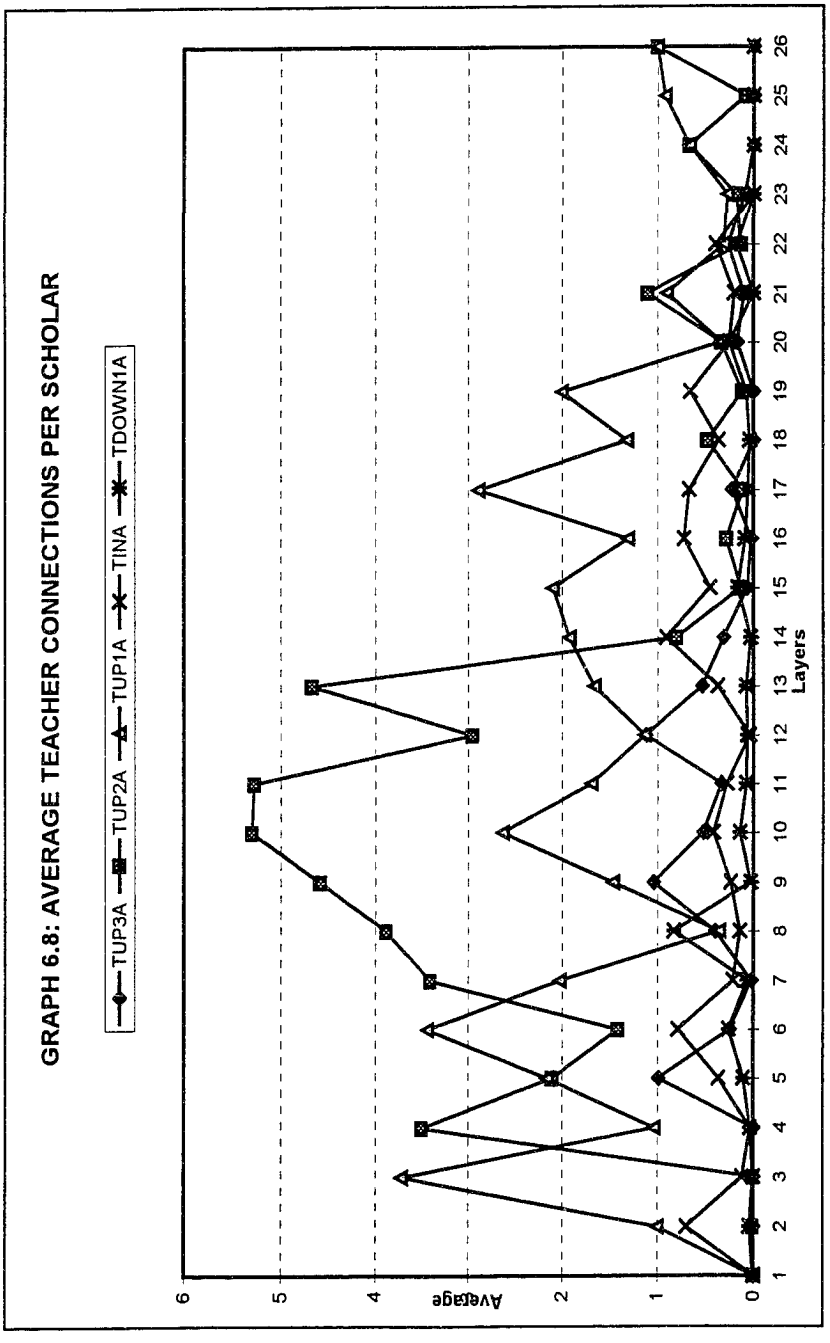

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TABLE 6.8: COMPOSITION OF CONNECTIONS

LNO	N	UP4%	UP3%	UP2%	UP1%	IN%	DOWN1%	DOWN2%	DOWN3%	DOWN4%	TOT%
L1	1	0.000	0.000	0.000	0.000	0.000	0 (1)	0.000	0.000	0.000	1
L2	23	0.000	0.000	0.000	0.061	0.085	0.419	0.280	0.152	0.003	1
L3	42	0.000	0.000	0.000	0.462	0.029	0.091	0.362	0.056	0.000	1
L4	30	0.000	0.000	0.279	0.082	0.005	0.335	0.293	0.005	0.000	1
L5	58	0.000	0.060	0.130	0.133	0.044	0.290	0.296	0.044	0.001	1
L6	78	0.001	0.015	0.087	0.218	0.097	0.146	0.328	0.107	0.001	1
L7	81	0.000	0.002	0.233	0.154	0.028	0.036	0.499	0.046	0.003	1
L8	106	0.000	0.029	0.289	0.030	0.021	0.194	0.410	0.028	0.000	1
L9	130	0.000	0.065	0.290	0.134	0.029	0.137	0.300	0.042	0.001	1
L10	106	0.001	0.037	0.392	0.189	0.059	0.142	0.152	0.028	0.001	1
L11	117	0.002	0.028	0.433	0.148	0.045	0.067	0.260	0.016	0.001	1
L12	77	0.000	0.139	0.368	0.156	0.010	0.220	0.104	0.003	0.000	1
L13	79	0.004	0.055	0.486	0.178	0.076	0.193	0.005	0.001	0.001	1
L14	74	0.004	0.050	0.139	0.322	0.291	0.146	0.030	0.009	0.009	1
L15	31	0.006	0.012	0.024	0.394	0.165	0.382	0.018	0.000	0.000	1
L16	46	0.000	0.005	0.065	0.304	0.308	0.262	0.056	0.000	0.000	1
L17	18	0.008	0.031	0.024	0.441	0.189	0.268	0.024	0.016	0.000	1
L18	25	0.031	0.000	0.094	0.266	0.141	0.414	0.039	0.008	0.008	1
L19	26	0.000	0.000	0.026	0.457	0.293	0.052	0.121	0.052	0.000	1
L20	12	0.000	0.057	0.143	0.171	0.171	0.343	0.086	0.029	0.000	1
L21	10	0.000	0.025	0.350	0.300	0.100	0.175	0.050	0.000	0.000	1
L22	23	0.020	0.122	0.061	0.143	0.367	0.143	0.122	0.020	0.000	1
L23	11	0.000	0.059	0.118	0.412	0.000	0.353	0.059		0.000	1
L24	9	0.000	0.000	0.250	0.250	0.000	0.458	0.042	0.000	0.000	1
L25	12	0.000	0.000	0.077	0.846	0.000	0.077	0.000	0.000	0.000	1
L26	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
TOTAL	1226	0.08	0.79	4.36	6.25	2.55	5.34	3.93	0.66	0.03	25
Mean	47.15	0.00	0.03	0.17	0.24	0.10	0.21	0.15	0.03	0.00	0.96

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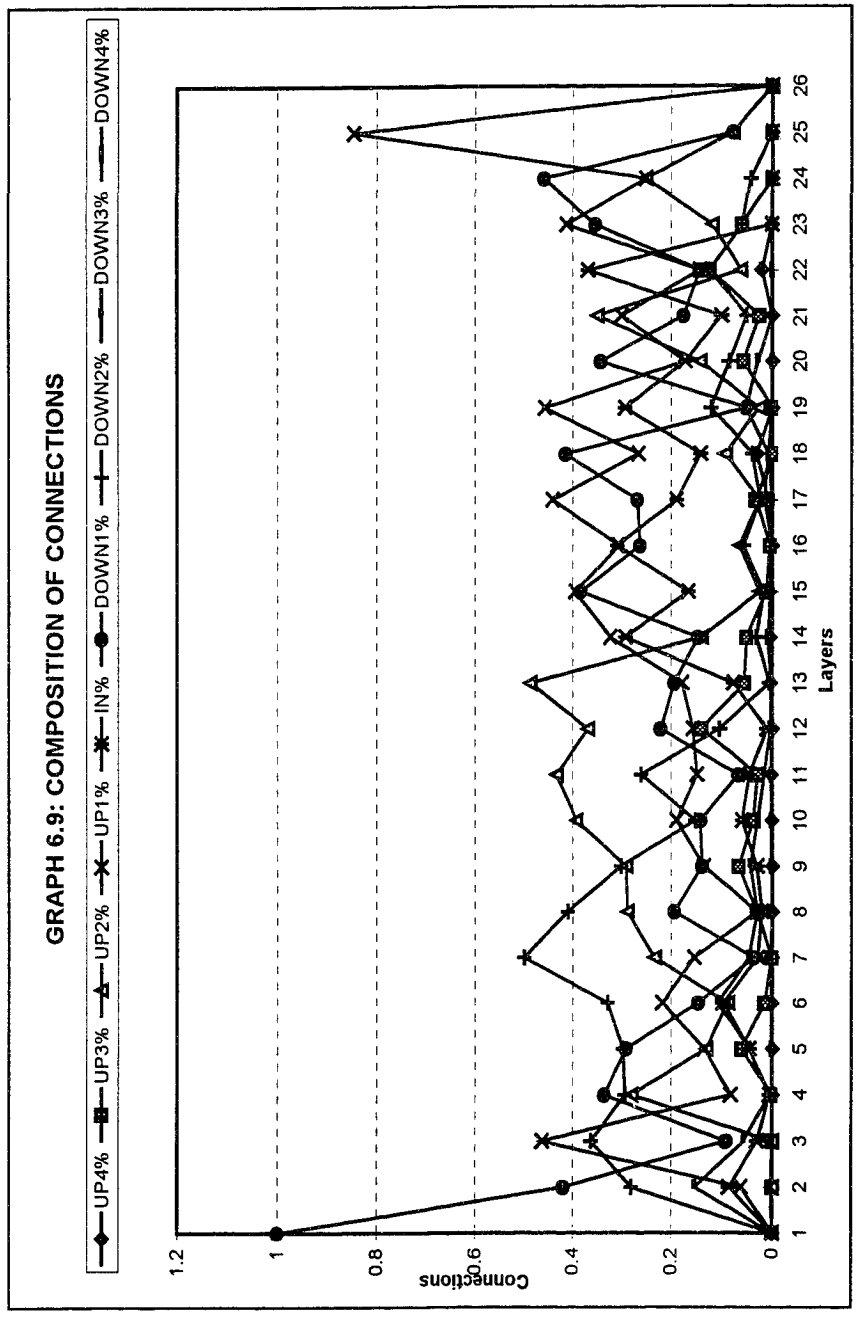

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TABLE 6.9: COMPOSITION OF STUDENT CONNECTIONS

LNO	N	SUP4%	SUP3%	SUP2%	SUP1%	SIN%	SDOWN1%	SDOWN2%	SDOWN3%	SDOWN4%
L1	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
L2	23	0.000	0.000	0.000	0.000	0.048	0.466	0.313	0.170	0.003
L3	42	0.000	0.000	0.000	0.006	0.028	0.174	0.685	0.107	0.000
L4	30	0.000	0.000	0.000	0.000	0.004	0.525	0.462	0.008	0.000
L5	58	0.000	0.000	0.002	0.002	0.034	0.439	0.452	0.069	0.002
L6	78	0.000	0.000	0.000	0.008	0.078	0.211	0.528	0.174	0.001
L7	81	0.000	0.000	0.004	0.027	0.023	0.052	0.814	0.075	0.004
L8	106	0.000	0.000	0.002	0.006	0.018	0.234	0.691	0.048	0.000
L9	130	0.000	0.000	0.002	0.079	0.027	0.253	0.559	0.078	0.003
L10	106	0.000	0.000	0.046	0.007	0.081	0.364	0.420	0.078	0.004
L11	117	0.000	0.002	0.004	0.028	0.060	0.164	0.696	0.043	0.002
L12	77	0.000	0.000	0.000	0.044	0.015	0.642	0.289	0.010	0.000
L13	79	0.000	0.000	0.016	0.027	0.157	0.768	0.022	0.005	0.005
L14	74	0.000	0.000	0.031	0.037	0.411	0.399	0.080	0.025	0.018
L15	31	0.000	0.000	0.000	0.026	0.179	0.769	0.026	0.000	0.000
L16	46	0.000	0.000	0.010	0.049	0.320	0.505	0.117	0.000	0.000
L17	18	0.000	0.000	0.018	0.073	0.218	0.600	0.055	0.036	0.000
L18	25	0.014	0.000	0.000	0.014	0.130	0.754	0.058	0.014	0.014
L19	26	0.000	0.000	0.000	0.026	0.436	0.103	0.282	0.154	0.000
L20	12	0.000	0.000	0.053	0.105	0.158	0.474	0.158	0.053	0.000
L21	10	0.000	0.000	0.176	0.176	0.118	0.412	0.118	0.000	0.000
L22	23	0.000	0.000	0.000	0.000	0.474	0.158	0.316	0.053	0.000
L23	11	0.000	0.000	0.000	0.364	0.000	0.545	0.091		0.000
L24	9	0.000	0.000	0.000	0.000	0.000	0.917	0.083	0.000	0.000
L25	12	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
L26	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	1226	0.01	0.00	0.36	1.10	3.02	11.93	7.31	1.20	0.06
Mean	47.15	0.00	0.00	0.01	0.04	0.12	0.46	0.28	0.05	0.00

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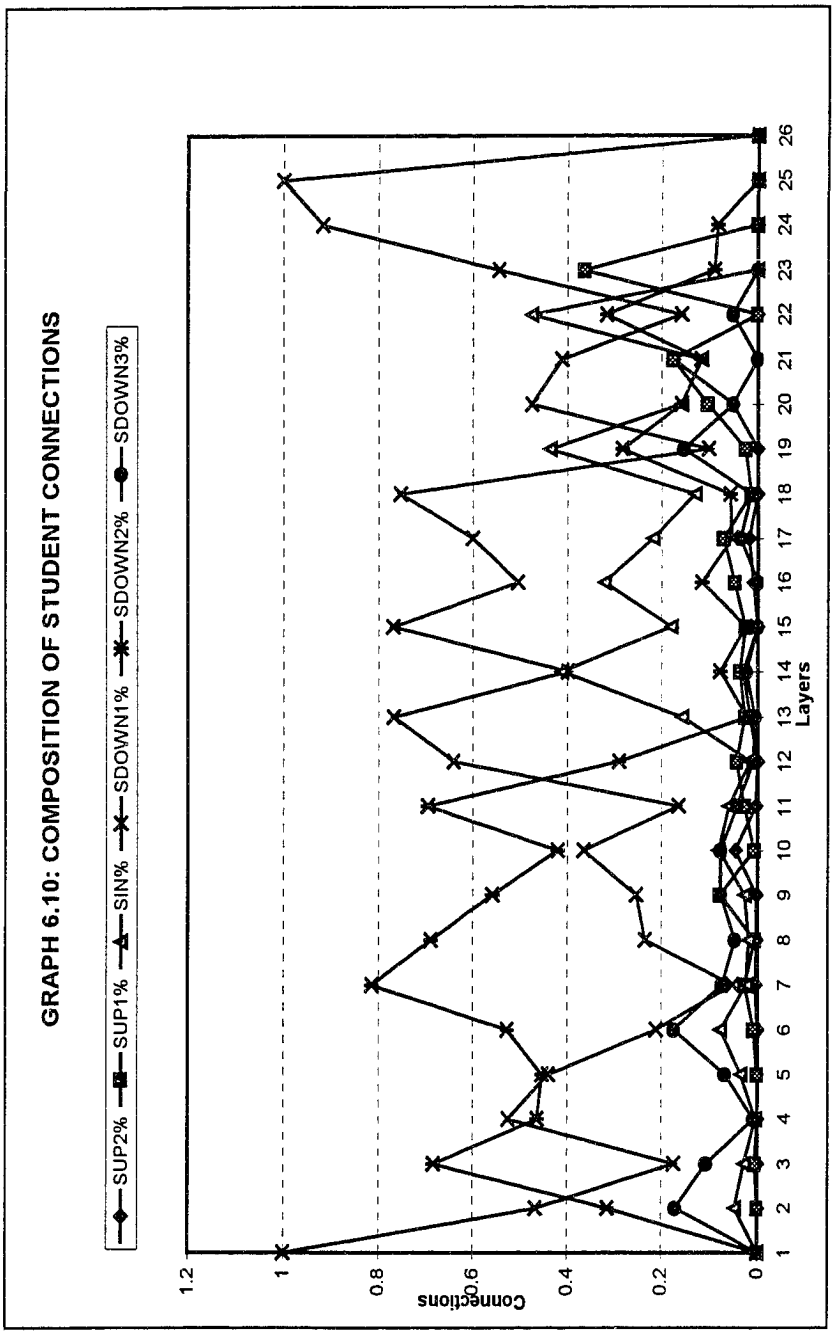

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TABLE 6.10: COMPOSITION OF TEACHER CONNECTIONS

LNO	N	TUP4%	TUP3%	TUP2%	TUP1%	TIN%	TDOWN1%	TDOWN2%	TDOWN3%	TDOWN4%
L1	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
L2	23	0.000	0.000	0.575	0.400	0.025	0.000	0.000	0.000	0.000
L3	42	0.000	0.000	0.963	0.031	0.000	0.006	0.000	0.000	0.000
L4	30	0.000	0.761	0.225	0.007	0.007	0.000	0.000	0.000	0.000
L5	58	0.171	0.365	0.374	0.063	0.018	0.009	0.000	0.000	0.000
L6	78	0.040	0.229	0.557	0.127	0.042	0.004	0.000	0.000	0.000
L7	81	0.004	0.592	0.352	0.036	0.011	0.004	0.000	0.000	0.000
L8	106	0.068	0.664	0.061	0.024	0.141	0.040	0.002	0.000	0.000
L9	130	0.141	0.622	0.198	0.031	0.004	0.002	0.000	0.000	0.000
L10	106	0.058	0.587	0.292	0.046	0.016	0.000	0.000	0.000	0.000
L11	117	0.043	0.686	0.219	0.036	0.010	0.003	0.000	0.000	0.000
L12	77	0.208	0.550	0.211	0.007	0.012	0.012	0.000	0.000	0.000
L13	79	0.072	0.636	0.226	0.050	0.010	0.000	0.000	0.000	0.000
L14	74	0.077	0.199	0.478	0.226	0.007	0.003	0.000	0.003	0.003
L15	31	0.022	0.043	0.707	0.152	0.054	0.011	0.000	0.000	0.000
L16	46	0.009	0.117	0.541	0.297	0.036	0.000	0.000	0.000	0.000
L17	18	0.056	0.028	0.722	0.167	0.014	0.000	0.000	0.000	0.000
L18	25	0.000	0.203	0.559	0.153	0.017	0.017	0.000	0.000	0.000
L19	26	0.000	0.039	0.675	0.221	0.026	0.039	0.000	0.000	0.000
L20	12	0.125	0.250	0.250	0.188	0.188	0.000	0.000	0.000	0.000
L21	10	0.043	0.478	0.391	0.087	0.000	0.000	0.000	0.000	0.000
L22	23	0.200	0.100	0.233	0.300	0.133	0.000	0.000	0.000	0.000
L23	11	0.167	0.333	0.500	0.000	0.000	0.000	0.000		0.000
L24	9	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000
L25	12	0.000	0.083	0.917	0.000	0.000	0.000	0.000	0.000	0.000
L26	1	0.000	0.333	0.333	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	1226	1.50	8.40	11.06	2.65	0.77	0.15	0.00	0.00	0.00
Mean	47.15	0.06	0.32	0.43	0.10	0.03	0.01	0.00	0.00	0.00

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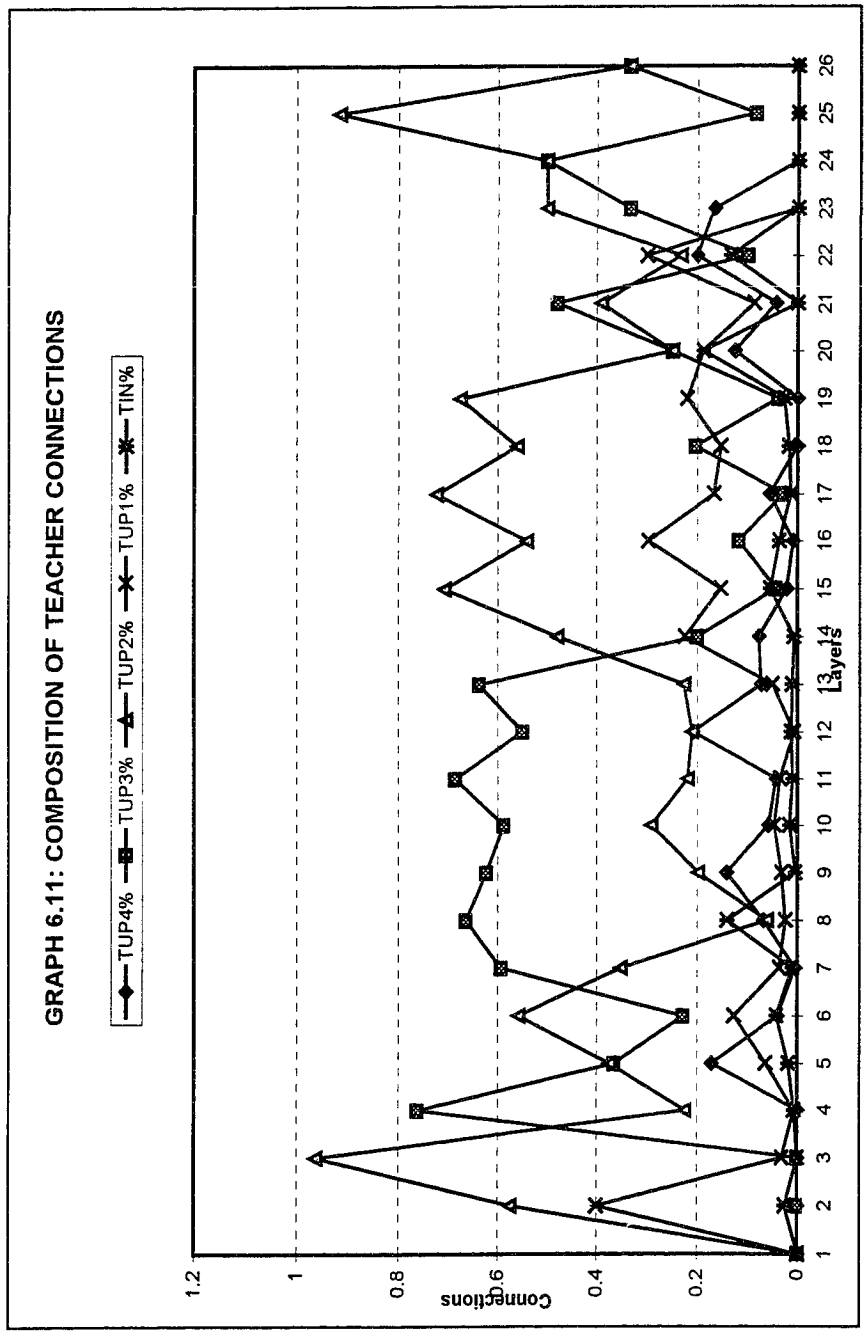

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TABLE 6.11: HYPOTHETICAL DENSITY WITHOUT TIME CONSTRAIN

	1	23	42	30	58	78	81	108	130	106	117	77	79	74	31	46	18	25	26	12	10	23	11	9	12	1	1225
1	1	23	42	30	58	78	81	108	130	106	117	77	79	74	31	46	18	25	26	12	10	23	11	9	12	1	1225
23	23	529	966	690	1334	1794	1863	2438	2990	2438	2691	1771	1817	1702	713	1058	414	575	598	276	230	529	253	207	276	23	28175
42	42	966	1764	1260	2438	3276	3402	4452	5460	4452	4914	3234	3318	3108	1302	1932	756	1050	1092	504	420	966	462	378	504	42	51450
30	30	690	1260	900	1740	2340	2430	3180	3900	3180	3510	2310	2370	2220	930	1380	540	750	780	360	300	690	330	270	360	30	36750
58	58	1334	2436	1740	3364	4524	4698	6148	7540	6148	6788	4466	4582	4292	1798	2668	1044	1450	1508	696	580	1334	638	522	696	58	71050
78	78	1794	3276	2340	4524	6084	6318	8268	10140	8268	9126	6008	6162	5772	2418	3588	1404	1950	2028	936	780	1794	858	702	936	78	95550
81	81	1863	3402	2430	4698	6318	6561	8588	10530	8588	9477	6237	6399	5994	2511	3726	1458	2025	2106	972	810	1863	891	729	972	81	99225
108	108	2438	4452	3180	6148	8288	8586	11238	13780	11238	12402	8162	8374	7844	3286	4876	1908	2650	2756	1272	1080	2438	1166	954	1272	108	129850
130	130	2990	5460	3900	7540	10140	10530	13780	16900	13780	15210	10010	10270	9620	4030	5980	2340	3250	3380	1560	1300	2990	1430	1170	1560	130	159250
106	106	2438	4452	3180	6148	8288	8586	11236	13780	11238	12402	8162	8374	7844	3286	4876	1908	2650	2756	1272	1080	2438	1166	954	1272	106	129850
117	117	2691	4914	3510	6788	9126	9477	12402	15210	12402	13689	9009	9243	8658	3627	5382	2106	2925	3042	1404	1170	2691	1287	1053	1404	117	143325
77	77	1771	3234	2310	4466	6006	6237	8162	10010	8162	9009	5929	6083	5698	2387	3542	1386	1925	2002	924	770	1771	847	693	924	77	94325
79	79	1817	3318	2370	4582	6162	6399	8374	10270	8374	9243	6083	6241	5846	2449	3634	1422	1975	2054	948	790	1817	869	711	948	79	96775
74	74	1702	3108	2220	4292	5772	5984	7844	9620	7844	8658	5698	5846	5476	2294	3404	1332	1850	1924	888	740	1702	814	666	888	74	90650
31	31	713	1302	930	1798	2418	2511	3286	4030	3286	3627	2387	2449	2294	961	1426	558	775	806	372	310	713	341	279	372	31	37975
46	46	1058	1932	1380	2668	3588	3726	4876	5980	4876	5382	3542	3634	3404	1426	2116	828	1150	1198	552	460	1058	506	414	552	46	56350
18	18	414	756	540	1044	1404	1458	1908	2340	1908	2106	1386	1422	1332	558	828	324	450	468	216	180	414	198	162	216	18	22050
25	25	575	1050	750	1450	1950	2025	2650	3250	2650	2925	1925	1975	1850	775	1150	450	625	650	300	250	575	275	225	300	25	30625
26	26	598	1092	780	1508	2028	2106	2756	3380	2756	3042	2002	2054	1924	806	1196	468	650	676	312	260	598	286	234	312	26	31850
12	12	276	504	360	696	936	972	1272	1560	1272	1404	924	948	888	372	552	216	300	312	144	120	276	132	108	144	12	14700
10	10	230	420	300	580	780	810	1060	1300	1060	1170	770	790	740	310	460	180	250	260	120	100	230	110	90	120	10	12250
23	23	529	966	690	1334	1794	1863	2438	2990	2438	2691	1771	1817	1702	713	1058	414	575	598	276	230	529	253	207	276	23	28175
11	11	253	462	330	638	858	891	1166	1430	1166	1287	847	869	814	341	506	198	275	286	132	110	253	121	99	132	11	13475
9	9	207	378	270	522	702	729	954	1170	954	1053	693	711	666	279	414	162	225	234	108	90	207	99	81	108	9	11025
12	12	276	504	360	696	936	972	1272	1560	1272	1404	924	948	888	372	552	216	300	312	144	120	276	132	108	144	12	14700
1	1	23	42	30	58	78	81	106	130	106	117	77	79	74	31	46	18	25	26	12	10	23	11	9	12	1	1225
1228	1228	28198	51492	36780	71108	95828	99308	129956	159380	129956	143442	94402	96854	90724	38006	56380	22068	30650	31676	14712	12260	28198	13486	11034	14712	1226	1501850
TOTAL	2451	56373	102942	73550	142158	191178	198531	259806	317200	259806	286767	188727	193529	181374	75981	112746	44118	61275	63726	29412	24510	56373	26961	22059	29412	2451	3002475
Mean	94.27	2168.19	3959.31	2828.08	5467.62	7353.00	7635.81	9992.54	12200.00	9992.54	11029.50	7258.73	7447.27	6975.92	2922.35	4336.38	1698.85	2356.73	2451.00	1131.23	942.69	2168.19	1038.08	848.42	1131.23	94.27	########

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TABLE 6.12: MAXIMUM POSSIBLE NETWORK DENSITY

LNO	N		Up4	Up3	Up2	Up1	In	Down1	Down2	Down3	Down4	total
L1	1	1					0	23	42	30	58	153
L2	23	2				23	528	966	690	1334	1794	5335
L3	42	3			42	966	1763	1260	2436	3276	3402	13145
L4	30	4		30	690	1260	899	1740	2340	2430	3180	12569
L5	58	5	58	1334	2436	1740	3363	4524	4698	6148	7540	31841
L6	78	6	1794	3276	2340	4524	6083	6318	8268	10140	8268	51011
L7	81	7	3402	2430	4698	6318	6560	8586	10530	8586	9477	60587
L8	106	8	3180	6148	8268	8586	11235	13780	11236	12402	8162	82997
L9	130	9	7540	10140	10530	13780	16899	13780	15210	10010	10270	108159
L10	106	10	8268	8586	11236	13780	11235	12402	8162	8374	7844	89887
L11	117	11	9477	12402	15210	12402	13688	9009	9243	8658	3627	93716
L12	77	12	8162	10010	8162	9009	5928	6083	5698	2387	3542	58981
L13	79	13	10270	8374	9243	6083	6240	5846	2449	3634	1422	53561
L14	74	14	7844	8658	5698	5846	5475	2294	3404	1332	1850	42401
L15	31	15	3627	2387	2449	2294	960	1426	558	775	806	15282
L16	46	16	3542	3634	3404	1426	2115	828	1150	1196	552	17847
L17	18	17	1422	1332	558	828	323	450	468	216	180	5777
L18	25	18	1850	775	1150	450	624	650	300	250	575	6624
L19	26	19	806	1196	468	650	675	312	260	598	286	5251
L20	12	20	552	216	300	312	143	120	276	132	108	2159
L21	10	21	180	250	260	120	99	230	110	90	120	1459
L22	23	22	575	598	276	230	528	253	207	276	23	2966
L23	11	23	286	132	110	253	120	99		11		1143
L24	9	24	108	90	207	99	80	108	9			701
L25	12	25	120	276	132	108	143	12				791
L26	1	26	23	11	9	12	0					55
TOTAL	1226	351	73086	82285	87876	91099	95706	91099	87744	82285	73086	764398
Mean	47.15	13.50	2811.00	3164.81	3379.85	3503.81	3681.00	3503.81	3374.77	3164.81	2811.00	29399.92

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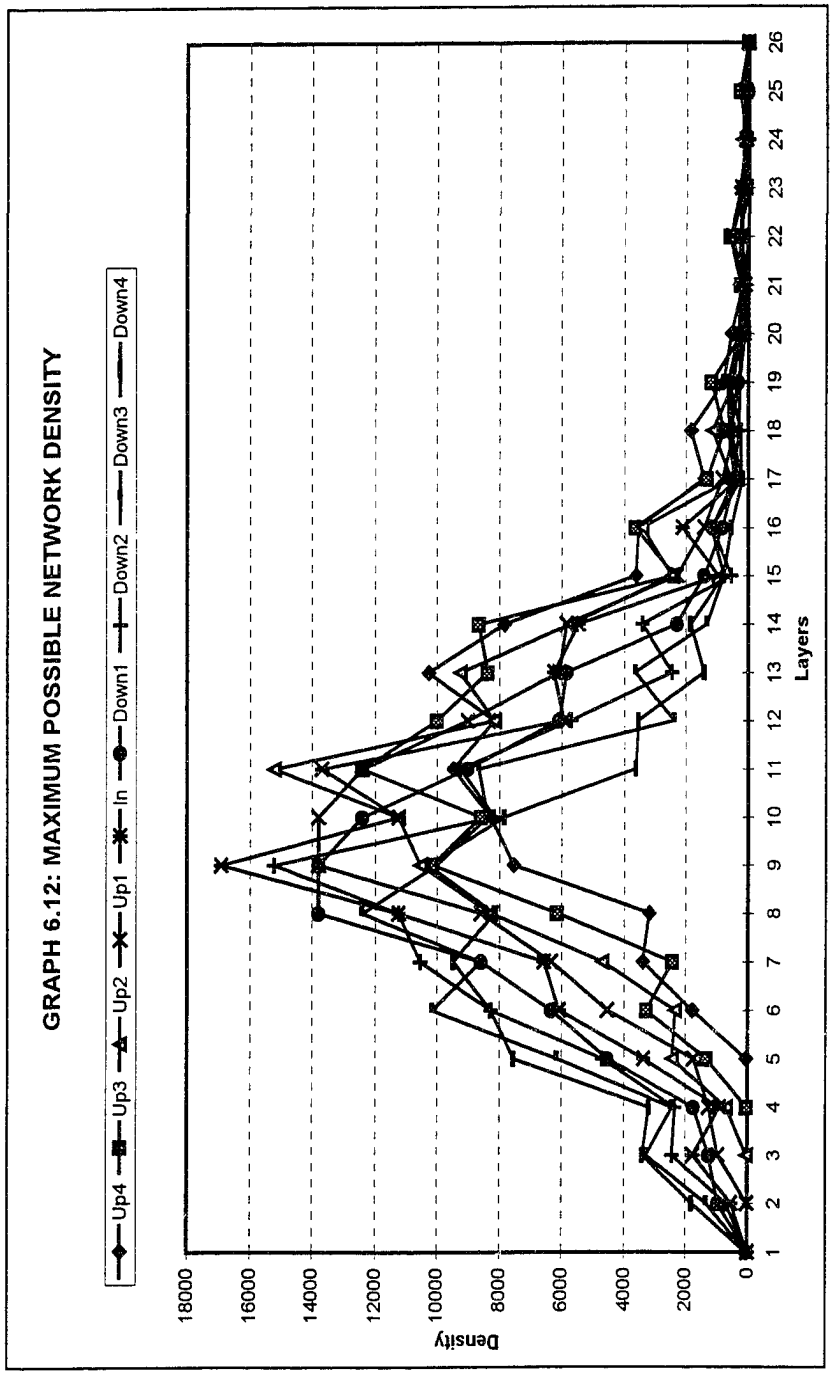

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TABLE 6.13: NETWORK DENSITY

LNO	N	UP4D	UP3D	UP2D	UP1D	IND	DOWN1D	DOWN2D	DOWN3D	DOWN4D	TOTD
L1	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.150
L2	23	0.000	0.000	0.000	1.000	0.061	0.163	0.152	0.043	0.001	0.070
L3	42	0.000	0.000	0.000	0.163	0.006	0.025	0.050	0.006	0.000	0.026
L4	30	0.000	0.000	0.152	0.025	0.002	0.072	0.047	0.001	0.000	0.030
L5	58	0.000	0.043	0.050	0.072	0.012	0.061	0.059	0.007	0.000	0.030
L6	78	0.001	0.006	0.047	0.061	0.020	0.029	0.050	0.013	0.000	0.025
L7	81	0.000	0.001	0.059	0.029	0.005	0.005	0.057	0.006	0.000	0.020
L8	106	0.000	0.007	0.050	0.005	0.003	0.020	0.052	0.003	0.000	0.017
L9	130	0.000	0.013	0.057	0.020	0.004	0.021	0.041	0.009	0.000	0.019
L10	106	0.000	0.006	0.052	0.021	0.008	0.017	0.028	0.005	0.000	0.017
L11	117	0.000	0.003	0.041	0.017	0.005	0.011	0.040	0.003	0.000	0.015
L12	77	0.000	0.009	0.028	0.011	0.001	0.022	0.011	0.001	0.000	0.010
L13	79	0.000	0.005	0.040	0.022	0.009	0.025	0.002	0.000	0.001	0.014
L14	74	0.000	0.003	0.011	0.025	0.024	0.029	0.004	0.003	0.002	0.011
L15	31	0.000	0.001	0.002	0.029	0.029	0.046	0.005	0.000	0.000	0.011
L16	46	0.000	0.000	0.004	0.046	0.031	0.068	0.010	0.000	0.000	0.012
L17	18	0.001	0.003	0.005	0.068	0.074	0.076	0.006	0.009	0.000	0.022
L18	25	0.002	0.000	0.010	0.076	0.029	0.082	0.017	0.004	0.002	0.019
L19	26	0.000	0.000	0.006	0.082	0.050	0.019	0.054	0.010	0.000	0.022
L20	12	0.000	0.009	0.017	0.019	0.042	0.100	0.011	0.008	0.000	0.016
L21	10	0.000	0.004	0.054	0.100	0.040	0.030	0.018	0.000	0.000	0.027
L22	23	0.002	0.010	0.011	0.030	0.034	0.028	0.029	0.004	0.000	0.017
L23	11	0.000	0.008	0.018	0.028	0.000	0.061	0.008		0.000	0.015
L24	9	0.000	0.000	0.029	0.061	0.000	0.102	0.111	0.000	0.000	0.034
L25	12	0.000	0.000	0.008	0.102	0.000	0.083	0.000	0.000	0.000	0.016
L26	1	0.043	0.000	0.111	0.083	0.000	0.000	0.000	0.000	0.000	0.055
TOTAL	1226	0.05	0.13	0.86	2.19	0.49	1.19	0.86	0.13	0.01	0.57
Mean	47.15	0.00	0.01	0.03	0.08	0.02	0.05	0.03	0.01	0.00	0.02

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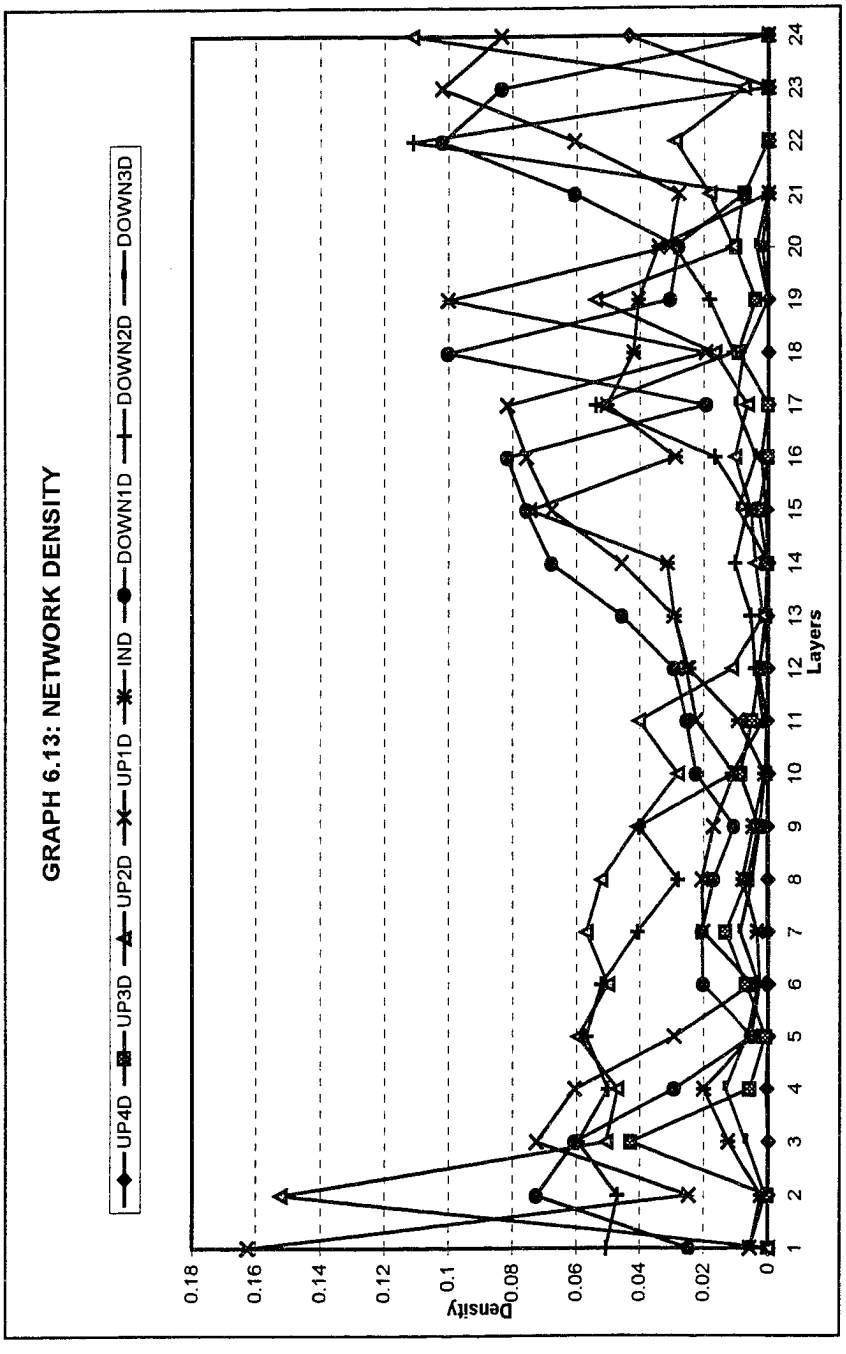

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TABLE 6.14: DENSITY OF STUDENT CONNECTIONS

LNO	N	SUP4D	SUP3D	SUP2D	SUP1D	SIND	SDOWN1D	SDOWN2D	SDOWN3D	SDOWN4D	StotD
L1	1	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.150
L2	23	0.000	0.000	0.000	0.000	0.030	0.161	0.152	0.043	0.001	0.063
L3	42	0.000	0.000	0.000	0.001	0.003	0.025	0.050	0.006	0.000	0.014
L4	30	0.000	0.000	0.000	0.000	0.001	0.072	0.047	0.001	0.000	0.019
L5	58	0.000	0.000	0.000	0.001	0.006	0.059	0.059	0.007	0.000	0.019
L6	78	0.000	0.000	0.000	0.001	0.010	0.026	0.050	0.013	0.000	0.015
L7	81	0.000	0.000	0.001	0.003	0.003	0.004	0.057	0.006	0.000	0.012
L8	106	0.000	0.000	0.000	0.001	0.001	0.014	0.050	0.003	0.000	0.010
L9	130	0.000	0.000	0.000	0.006	0.002	0.020	0.041	0.009	0.000	0.010
L10	106	0.000	0.000	0.002	0.000	0.004	0.016	0.028	0.005	0.000	0.006
L11	117	0.000	0.000	0.000	0.001	0.002	0.010	0.040	0.003	0.000	0.006
L12	77	0.000	0.000	0.000	0.001	0.001	0.022	0.010	0.001	0.000	0.003
L13	79	0.000	0.000	0.000	0.001	0.005	0.024	0.002	0.000	0.001	0.003
L14	74	0.000	0.000	0.001	0.001	0.012	0.028	0.004	0.003	0.002	0.004
L15	31	0.000	0.000	0.000	0.001	0.015	0.042	0.004	0.000	0.000	0.005
L16	46	0.000	0.000	0.000	0.004	0.016	0.063	0.010	0.000	0.000	0.006
L17	18	0.000	0.000	0.002	0.005	0.037	0.073	0.006	0.009	0.000	0.010
L18	25	0.001	0.000	0.000	0.002	0.014	0.080	0.013	0.004	0.002	0.010
L19	26	0.000	0.000	0.000	0.002	0.025	0.013	0.042	0.010	0.000	0.007
L20	12	0.000	0.000	0.003	0.006	0.021	0.075	0.011	0.008	0.000	0.009
L21	10	0.000	0.000	0.012	0.025	0.020	0.030	0.018	0.000	0.000	0.012
L22	23	0.000	0.000	0.000	0.000	0.017	0.012	0.029	0.004	0.000	0.006
L23	11	0.000	0.000	0.000	0.016	0.000	0.061	0.008		0.000	0.010
L24	9	0.000	0.000	0.000	0.000	0.000	0.102	0.111	0.000	0.000	0.017
L25	12	0.000	0.000	0.000	0.000	0.000	0.083	0.000	0.000	0.000	0.001
L26	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	1226	0.00	0.00	0.02	0.08	0.25	1.12	0.84	0.13	0.01	0.28
Mean	47.15	0.00	0.00	0.00	0.00	0.01	0.04	0.03	0.01	0.00	0.01

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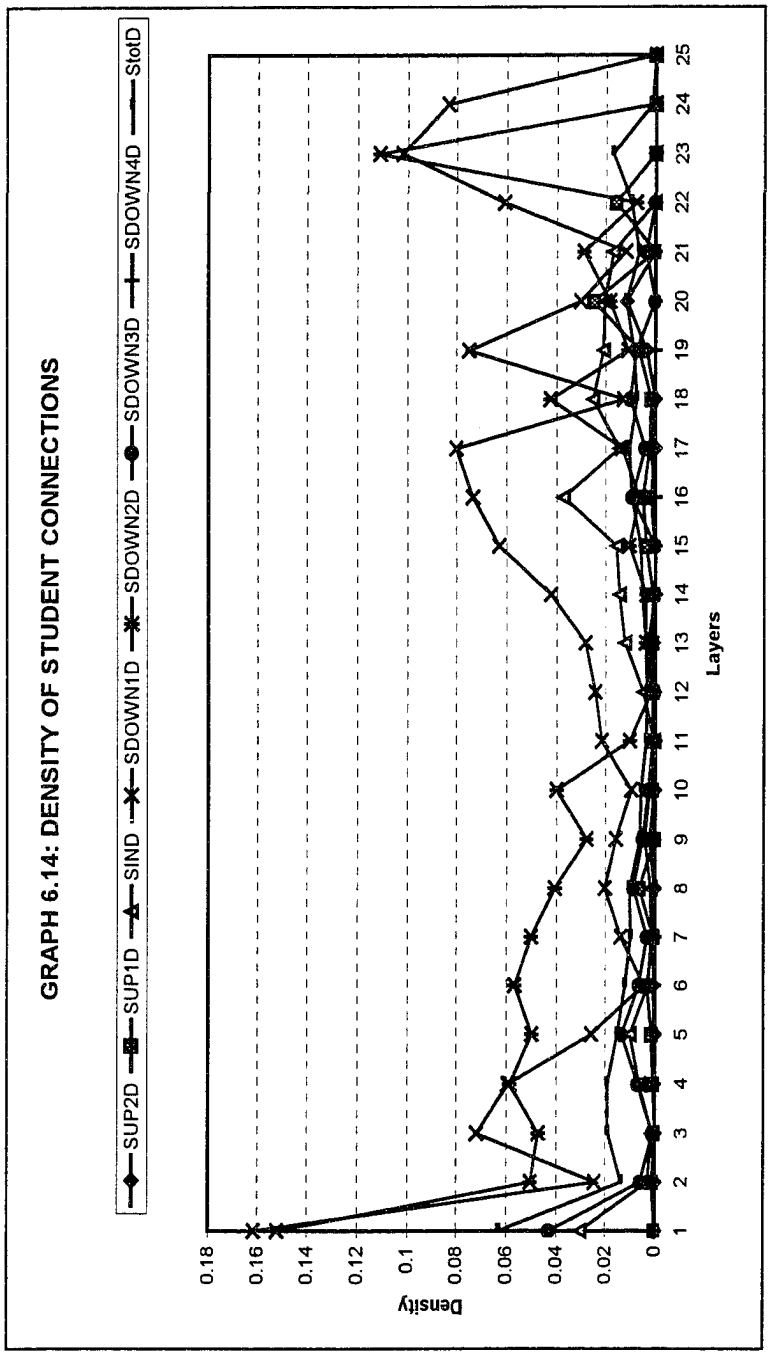

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TABLE 6.15: DENSITY OF TEACHER CONNECTIONS

LNO	N	TUP4D	TUP3D	TUP2D	TUP1D	TIND	TDOWN1D	TDOWN2D	TDOWN3D	TDOWN4D	TOTALD
L1	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
L2	23	0.000	0.000	0.000	0(1)	0.030	0.001	0.000	0.000	0.000	0.007
L3	42	0.000	0.000	0.000	0.161	0.003	0.000	0.000	0.000	0.000	0.012
L4	30	0.000	0.000	0.152	0.025	0.001	0.001	0.000	0.000	0.000	0.011
L5	58	0.000	0.043	0.050	0.072	0.006	0.001	0.001	0.000	0.000	0.010
L6	78	0.001	0.006	0.047	0.059	0.010	0.003	0.000	0.000	0.000	0.009
L7	81	0.000	0.001	0.059	0.026	0.003	0.001	0.000	0.000	0.000	0.008
L8	106	0.000	0.007	0.050	0.004	0.001	0.006	0.002	0.000	0.000	0.007
L9	130	0.000	0.013	0.057	0.014	0.002	0.000	0.000	0.000	0.000	0.009
L10	106	0.000	0.006	0.050	0.020	0.004	0.001	0.000	0.000	0.000	0.011
L11	117	0.000	0.003	0.041	0.016	0.002	0.001	0.000	0.000	0.000	0.010
L12	77	0.000	0.009	0.028	0.010	0.001	0.001	0.001	0.000	0.000	0.007
L13	79	0.000	0.005	0.040	0.022	0.005	0.001	0.000	0.000	0.000	0.011
L14	74	0.000	0.003	0.010	0.024	0.012	0.001	0.000	0.000	0.001	0.007
L15	31	0.000	0.001	0.002	0.028	0.015	0.004	0.002	0.000	0.000	0.006
L16	46	0.000	0.000	0.004	0.042	0.016	0.005	0.000	0.000	0.000	0.006
L17	18	0.001	0.003	0.004	0.063	0.037	0.002	0.000	0.000	0.000	0.012
L18	25	0.002	0.000	0.010	0.073	0.014	0.002	0.003	0.000	0.000	0.009
L19	26	0.000	0.000	0.006	0.080	0.025	0.006	0.012	0.000	0.000	0.015
L20	12	0.000	0.009	0.013	0.013	0.021	0.025	0.000	0.000	0.000	0.007
L21	10	0.000	0.004	0.042	0.075	0.020	0.000	0.000	0.000	0.000	0.016
L22	23	0.002	0.010	0.011	0.030	0.017	0.016	0.000	0.000	0.000	0.010
L23	11	0.000	0.008	0.018	0.012	0.000	0.000	0.000		0.000	0.005
L24	9	0.000	0.000	0.029	0.061	0.000	0.000	0.000	0.000	0.000	0.017
L25	12	0.000	0.000	0.008	0.102	0.000	0.000	0.000	0.000	0.000	0.015
L26	1	0.043	0.000	0.111	0.083	0.000	0.000	0.000	0.000	0.000	0.055
TOTAL	1226	0.05	0.13	0.84	1.12	0.25	0.08	0.02	0.00	0.00	0.29
Mean	47.15	0.00	0.01	0.03	0.04	0.01	0.00	0.00	0.00	0.00	0.01

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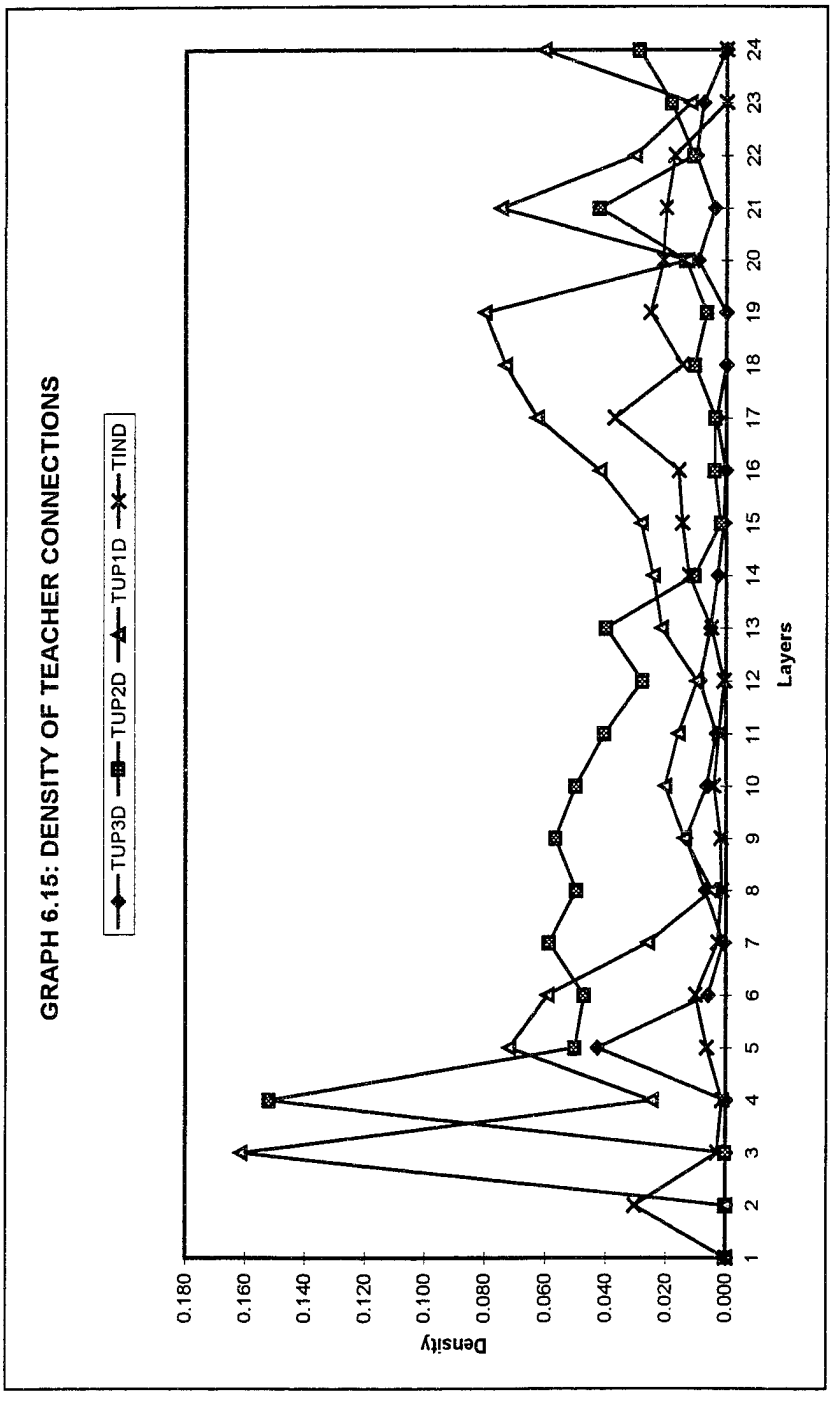

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TABLE 6.16: CONNECTIONS TO DISTANCES

		MAX POSSIBLE CONNECTIONS TO DISTANCES					TOTAL CONNECTIONS TO DISTANCES				
LNO	N	S4	S3	S2	S1	SIN	S4	S3	S2	S1	SIN
L1	1	58	30	42	23	0	0	0	0	23	0
L2	23	1794	1334	690	989	528	1	57	105	180	32
L3	42	3402	3276	2478	2226	1763	0	19	123	188	10
L4	30	3180	2460	3030	3000	899	0	2	215	157	2
L5	58	7598	7482	7134	6264	3363	1	99	402	400	42
L6	78	10062	13416	10608	10842	6083	2	154	523	458	122
L7	81	12879	11016	15228	14904	6560	3	57	877	227	34
L8	106	11342	18550	19504	22366	11235	0	82	999	320	30
L9	130	17810	20150	25740	27560	16899	4	221	1217	560	60
L10	106	16112	16960	19398	26182	11235	3	97	813	495	88
L11	117	13104	21060	24453	21411	13688	4	63	991	308	64
L12	77	11704	12397	13860	15092	5928	0	88	291	232	6
L13	79	11692	12008	11692	11929	6240	4	43	376	284	58
L14	74	9694	9990	9102	8140	5475	6	27	78	215	134
L15	31	4433	3162	3007	3720	960	1	2	7	132	28
L16	46	4094	4830	4554	2254	2115	0	1	26	121	66
L17	18	1602	1548	1026	1278	323	1	6	6	90	24
L18	25	2425	1025	1450	1100	624	5	1	17	87	18
L19	26	1092	1794	728	962	675	0	6	17	59	34
L20	12	660	348	576	432	143	0	3	8	18	6
L21	10	300	340	370	350	99	0	1	16	19	4
L22	23	598	874	483	483	528	1	7		14	18
L23	11	286	143	242	352	120	0	1	3	13	0
L24	9	108	90	216	207	80	0	0	7	17	0
L25	12	120	276	132	120	143	0	0	1	12	0
L26	1	23	11	9	12	0	1	0	1	1	0
Mean	47.15	5622	6329.6154	6759.6923	7007.6154	3681	1.42308	39.8846	274.154	178.077	33.8462

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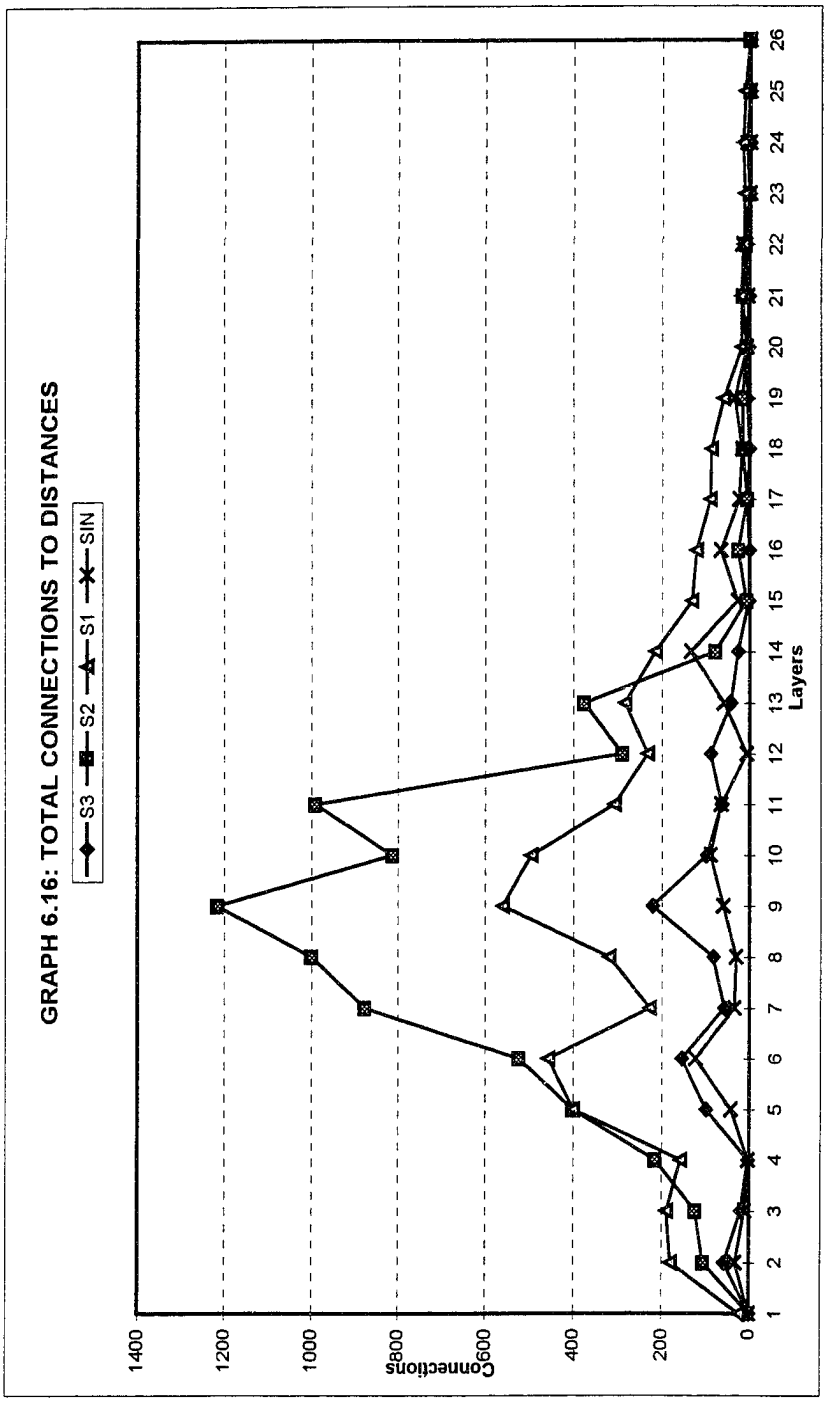

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Table 6. 17: Average Connections Per Scholar To Distances

LNO	N	S4	S3	S2	S1	SIN	TOTAL
L1	1	0.000	0.000	0.000	23.000	0.000	23.000
L2	23	0.043	2.478	4.565	7.826	1.391	16.304
L3	42	0.000	0.452	2.929	4.476	0.238	8.095
L4	30	0.000	0.067	7.167	5.233	0.067	12.533
L5	58	0.017	1.707	6.931	6.897	0.724	16.276
L6	78	0.026	1.974	6.705	5.872	1.564	16.141
L7	81	0.037	0.704	10.827	2.802	0.420	14.790
L8	106	0.000	0.774	9.425	3.019	0.283	13.500
L9	130	0.031	1.700	9.362	4.308	0.462	15.862
L10	106	0.028	0.915	7.670	4.670	0.830	14.113
L11	117	0.034	0.538	8.470	2.632	0.547	12.222
L12	77	0.000	1.143	3.779	3.013	0.078	8.013
L13	79	0.051	0.544	4.759	3.595	0.734	9.684
L14	74	0.081	0.365	1.054	2.905	1.811	6.216
L15	31	0.032	0.065	0.226	4.258	0.903	5.484
L16	46	0.000	0.022	0.565	2.630	1.435	4.652
L17	18	0.056	0.333	0.333	5.000	1.333	7.056
L18	25	0.200	0.040	0.680	3.480	0.720	5.120
L19	26	0.000	0.231	0.654	2.269	1.308	4.462
L20	12	0.000	0.250	0.667	1.500	0.500	2.917
L21	10	0.000	0.100	1.600	1.900	0.400	4.000
L22	23	0.043	0.304	0.391	0.609	0.783	2.130
L23	11	0.000	0.091	0.273	1.182	0.000	
L24	9	0.000	0.000	0.778	1.889	0.000	2.667
L25	12	0.000	0.000	0.083	1.000	0.000	1.083
L26	1	1.000	0.000	1.000	1.000	0.000	3.000
TOTAL	1226	1.68	14.80	90.89	106.97	16.53	229.32
Mean	47.15	0.06	0.57	3.50	4.11	0.64	8.82

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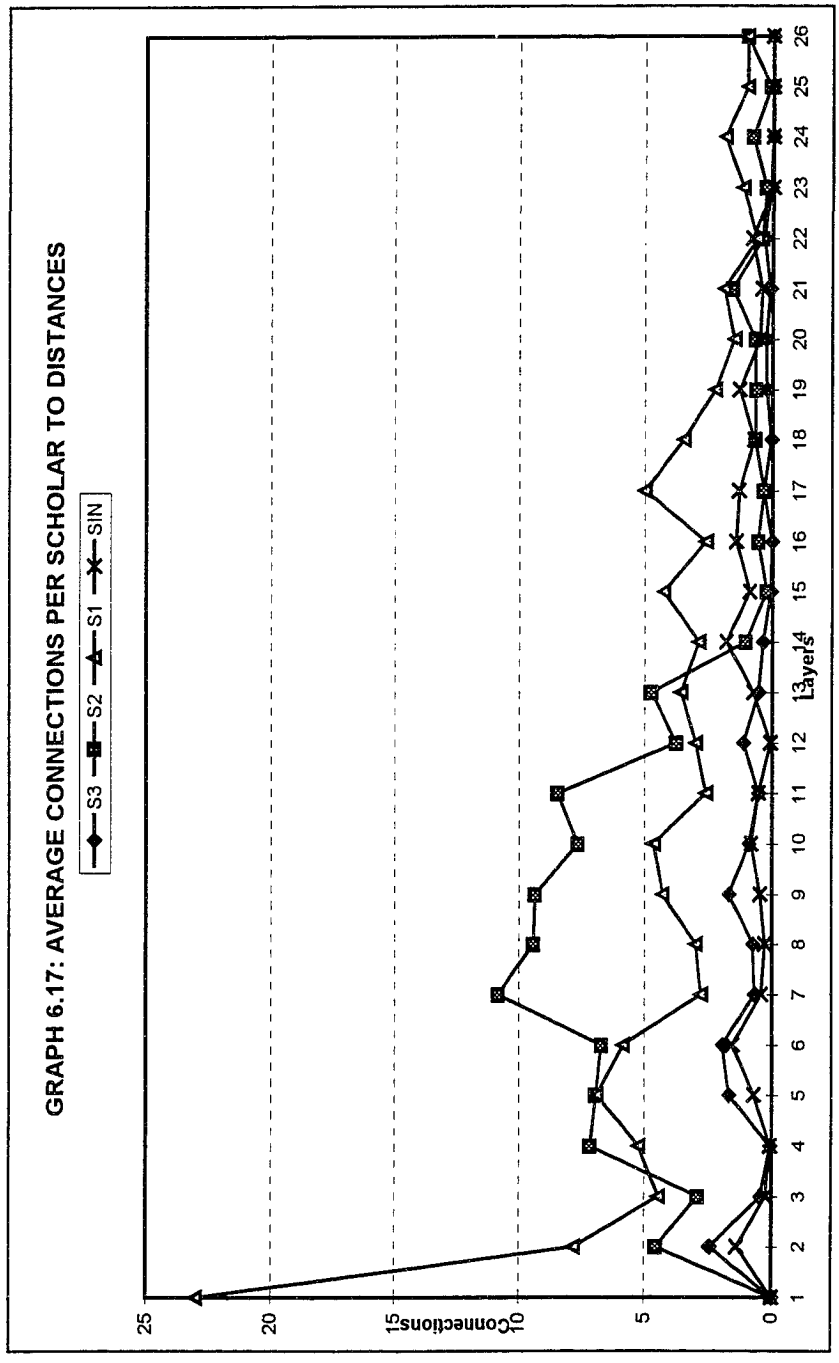

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TABLE 6.18: COMPOSTION OF CONNECTIONS TO DISTANNCES

LNO	N	S4	S3	S2	S1	SIN
L1	1	0.000	0.000	0.000	1.000	0.000
L2	23	0.003	0.152	0.280	0.480	0.085
L3	42	0.000	0.056	0.362	0.553	0.029
L4	30	0.000	0.005	0.572	0.418	0.005
L5	58	0.001	0.105	0.426	0.424	0.044
L6	78	0.002	0.122	0.415	0.364	0.097
L7	81	0.003	0.048	0.732	0.189	0.028
L8	106	0.000	0.057	0.698	0.224	0.021
L9	130	0.002	0.107	0.590	0.272	0.029
L10	106	0.002	0.065	0.543	0.331	0.059
L11	117	0.003	0.044	0.693	0.215	0.045
L12	77	0.000	0.143	0.472	0.376	0.010
L13	79	0.005	0.056	0.492	0.371	0.076
L14	74	0.013	0.059	0.170	0.467	0.291
L15	31	0.006	0.012	0.041	0.776	0.165
L16	46	0.000	0.005	0.121	0.565	0.308
L17	18	0.008	0.047	0.047	0.709	0.189
L18	25	0.039	0.008	0.133	0.680	0.141
L19	26	0.000	0.052	0.147	0.509	0.293
L20	12	0.000	0.086	0.229	0.514	0.171
L21	10	0.000	0.025	0.400	0.475	0.100
L22	23	0.020	0.143	0.184	0.286	0.367
L23	11	0.000	0.059	0.176	0.765	0.000
L24	9	0.000	0.000	0.292	0.708	0.000
L25	12	0.000	0.000	0.077	0.923	0.000
L26	1	0.333	0.000	0.333	0.333	0.000
Mean	47	0.0169	0.0559	0.3317	0.4972	0.0983

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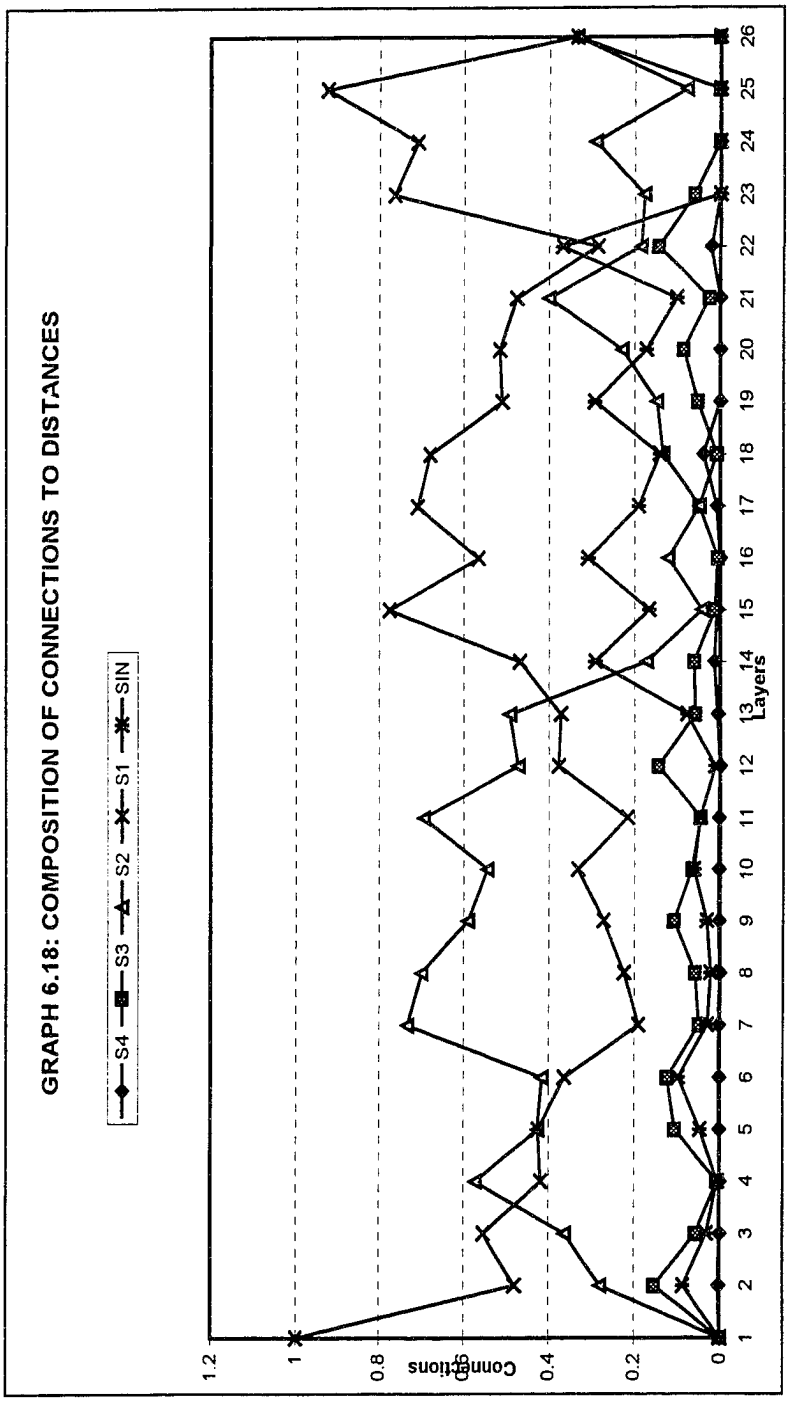

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TABLE 6.19: DENSITY OF CONNECTIONS TO DISTANCES

LNO	N	S4	S3	S2	S1	SIN
L1	1	0.000	0.000	0.000	1.000	0.000
L2	23	0.001	0.043	0.152	0.182	0.061
L3	42	0.000	0.006	0.050	0.084	0.006
L4	30	0.000	0.001	0.071	0.052	0.002
L5	58	0.000	0.013	0.056	0.064	0.012
L6	78	0.000	0.011	0.049	0.042	0.020
L7	81	0.000	0.005	0.058	0.015	0.005
L8	106	0.000	0.004	0.051	0.014	0.003
L9	130	0.000	0.011	0.047	0.020	0.004
L10	106	0.000	0.006	0.042	0.019	0.008
L11	117	0.000	0.003	0.041	0.014	0.005
L12	77	0.000	0.007	0.021	0.015	0.001
L13	79	0.000	0.004	0.032	0.024	0.009
L14	74	0.001	0.003	0.009	0.026	0.024
L15	31	0.000	0.001	0.002	0.035	0.029
L16	46	0.000	0.000	0.006	0.054	0.031
L17	18	0.001	0.004	0.006	0.070	0.074
L18	25	0.002	0.001	0.012	0.079	0.029
L19	26	0.000	0.003	0.023	0.061	0.050
L20	12	0.000	0.009	0.014	0.042	0.042
L21	10	0.000	0.003	0.043	0.054	0.040
L22	23	0.002	0.008	0.019	0.029	0.034
L23	11	0.000	0.007	0.012	0.037	0.000
L24	9	0.000	0.000	0.032	0.082	0.000
L25	12	0.000	0.000	0.008	0.100	0.000
L26	1	0.043	0.000	0.111	0.083	0.000
TOTAL	1226	0.05	0.15	0.97	2.30	0.49
Mean	47.15	0.00	0.01	0.04	0.09	0.02

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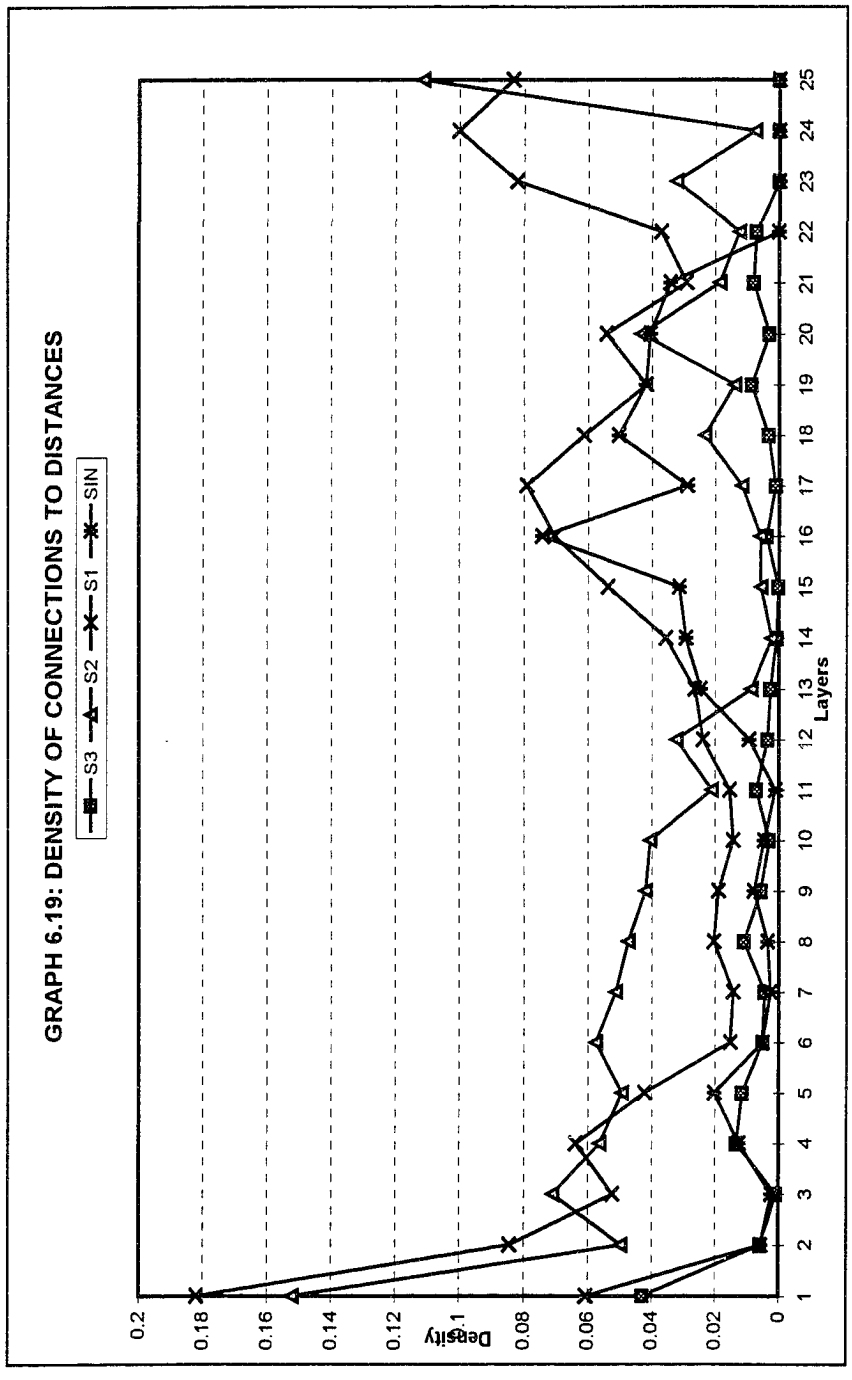

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Table 7.20: List of Time Series Used in the Analysis

no	Series Name	Period	Definition
			Series about Raw values or the total number of connections
1	{Stotal}	610-1505	total number of student connections from a layer,
2	{Ttotal}	610-1505	total number of teacher connections from a layer
3	{Total}	610-1505	total number of connections, sum of teacher and student connections from a layer.
			Series about Average number of connections
4	{Savarage}	610-1505	average number of student connections per scholar from a layer.
5	{Tavarage}	610-1505	average number of teacher connections per scholar from a layer.
6	{Stavarage}	610-1505	average number of connections per scholar from a layer, teacher and student ties together.
			Series about In-layer connections
7	{Sin}	610-1505	total number of in-layer student connections for a layer.
8	{Tin}	610-1505	total number of in-layer teacher connections for a layer.
9	{In}	610-1505	total number of in-layer connections, including both teacher and student connections.
10	{Stina}	610-1505	average number of in-layer student connections of a layer.
11	{Tina}	610-1505	average number of in-layer teacher connections of a layer.
12	{Sttina}	610-1505	average number of in-layer connections, including both student and teacher connections.
			Series about percentage of connections to distances
13	{Suld1per}	610-1505	percentage of student connections per scholar to distance 1(up1 and down1) of a layer.
14	{Su2d2per}	610-1505	percentage of student connections per scholar to distance 2 (up2 and down2) of a layer.
15	{Sinper}	610-1505	percentage of in-layer student connections per scholar of a layer.
16	{Tuld1per}	610-1505	percentage of teacher connections per scholar to distance 1 (up1 and down1) of a layer.
17	{Tu2d2per}	610-1505	percentage of teacher connections per scholar to distance 2 (up2 and down2) of a layer.
18	{Tinper}	610-1505	percentage of in-layer connections per scholar of a layer.
19	{Su2d3per}	610-1505	percentage of student ties per scholar to distance 2 earlier (up) and distance 3 later (down).
20	{Su2d4per}	610-1505	percentage of student connections per scholar to distance 2 earlier (up) and distance 4 later.
21	{Tu3d2per}	610-1505	percentage of teacher connections to distance 3 earlier (up) and distance 2 future (down).
22	{Tu4d2per}	610-1505	percentage of teacher connections per scholar to distance 4 earlier and distance 2 later.

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Table 7. 21: Tabled t values*

	Significance Levels		
	0.01	0.05	0.10
without trend (constant only) eq. (14)	-3.74	-3.33	-2.62
with trend eq. (const + trend) eq. (15)	-4.38	-3.60	-3.24

*Enders & Walter. 1996. *The Applied Time Series Analysis.*

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Table 7.22: Dickey-Fuller Unit Root Tests for the Time Series in Aggregate Values

no	series	eq. (13) without trend	eq. (14) with trend
1	Stotal	-1.18 (non-stationary)	-2.10 (non-stationary)
2	Ttotal	-1.21 (non-stationary)	-2.11 (non-stationary)
3	Total	-1.02 (non-stationary)	-2.08 (non-stationary)

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Table 7.23: Dickey-Fuller Unit Root Tests for the Time Series in Averages

no	series	eq. (13) without trend		eq. (14) with trend	
1	Savarage	-2.93	(non-stationary)*	-4.83	(non-stationary)
2	Tavarage	-1.22	(non-stationary)	-3.15	(non-stationary)
3	Stavarage	-1.28	(non-stationary)	-2.97	(non-stationary)

* stationary at 0.10 level.

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Table 7.24: Dickey-Fuller Unit Root Tests for the Time Series in Percentages

no	series	eq. (13) without trend	eq. (14) with trend
1	Sup2per	-3.97 (stationary)	-4.00 (stationary)
2	Sup1per	-5.25 (stationary)	-6.59 (stationary)
3	Sd1per	-2.76 (stationary)	-3.50 (stationary)
4	Sd2per	-1.64 (stationary)	-3.24 (stationary)
5	Sd3per	-3.81 (stationary)	-4.24 (stationary)
6	Sd4per	-4.63 (stationary)	-4.53 (stationary)
7	Sinper	-3.48 (stationary)	-3.66 (stationary)
8	Tup4per	-4.65 (stationary)	-4.44 (stationary)
9	Tup3per	-4.22 (stationary)	-4.07 (stationary)
10	Tup2per	-3.08 (stationary)	-3.43 (stationary)
11	Tup1per	-2.88* (non-stationary)	-2.93 (non-stationary)
12	Td1per	-5.71 (stationary)	-5.70 (stationary)
13	Td2per	-4.50 (stationary)	-4.45 (stationary)
14	Td3per	-4.79 (stationary)	-4.86 (stationary)
15	Td4per	-4.79 (stationary)	-4.67 (stationary)
16	Tinper	-4.41 (stationary)	-4.59 (stationary)

*This series is stationary at the 0.10 level.

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Table 7.25: Regression Results from eqs. (8), (9), and (10) for the Time Series in Percentages

no	regression equations	coefficient of inper	F test statistics	significance level
1	Sup2per = c + α sinper + et	0.0199	F (1,22) 0.133	0.718
2	Sup1per = c + α sinper + et	-0.0538	F (1,22) 0.217	0.645
3	Sd1per = c + α sinper + et	-0.4017	F (1,22) 1.16	0.292
4	Sd2per = c + α sinper + et	-0.5953	F (1,22) 2.88	0.103
5	Sd3per = c + α sinper + et	0.0227	F (1,22) 0.08	0.778
6	Sd4per = c + α sinper + et	0.0083	F (1,22) 1.59	0.219
7	Tup4per = c + α tinper + et	0.0335	F (1,22) 2.34	0.139
8	Tup3per = c + α tinper + et	-0.0502	F (1,22) 0.149	0.702
9	Tup2per = c + α tinper + et	-1.5009	F (1,22) 16.80*	0.000
10	Tup1per = c + α tinper + et	0.3701	F (1,22) 0.710	0.408
11	Td1per = c + α tinper + et	0.1482	F (1,22) 2.80	0.108
12	Td2per = c + α tinper + et	-0.0015	F (1,22) 0.005	0.493
13	Td3per = c + α tinper + et	-0.0004	F (1,22) 0.597	0.447
14	Td4per = c + α tinper + et	0.0010	F (1,22) 1.09	0.306

*Significant

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Table 7.26 : Dickey-Fuller Unit Root Tests for the Density Time Series

no	series	eq. (13) without trend	eq. (14) with trend
1	Sup2d	-3.96 (stationary)	-4.18 (stationary)
2	Sup1d	-4.83 (stationary)	-6.31 (stationary)
3	Sinden	-3.22* (non-stationary)	-3.13 (stationary)
4	Sdown1d	-29.7 (stationary)	-28.6 (stationary)
5	Sdown2d	-3.79 (stationary)	-4.57 (stationary)
6	Sdown3d	-4.81 (stationary)	-5.91 (stationary)
7	Sdown4d	-4.79 (stationary)	-4.66 (stationary)
8	Tup4d	-4.79 (stationary)	-4.93 (stationary)
9	Tup3d	-5.97 (stationary)	-6.28 (stationary)
10	Tup2d	-3.71 (stationary)	-4.92 (stationary)
11	Tup1d	-29.7 (stationary)	-28.6 (stationary)
12	Tind	-3.01* (non-stationary)	-3.24* (non-stationary)
13	Tdown1d	-4.79 (stationary)	-5.11 (stationary)
14	Tdown2d	-3.96 (stationary)	-3.89 (stationary)
15	Tdown3d	-4.79 (stationary)	-4.86 (stationary)
16	Tdown4d	-4.79 (stationary)	-4.67 (stationary)

*These series are stationary at the 0.10 level.

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Table 7.27: Regression Results from eqs. (11), (12) and (13) for the Density Time Series

no	regression equations	coefficient	F statistics	significance level
1	Sup2d = c + α sinden + et	0.0679	F (1,22) 2.153	0.156
2	Sup1d = c + α sinden + et	0.0875	F (1,22) 0.583	0.452
3	Sdown1d = c + α sinden + et	-2.423	F (1,22) 0.375	0.546
4	Sdown2d = c + α sinden + et	0.1663	F (1,22) 0.052	0.820
5	Sdown3d = c + α sinden + et	0.4238	F (1,22) 7.79*	0.010
6	Sdown4d = c + α sinden + et	0.0003	F (1,22) 0.121	0.730
7	Tup4d = c + α tind + et	0.0128	F (1,22) 1.93	0.178
8	Tup3d = c + α tind + et	-0.1174	F (1,22) 0.443	0.512
9	Tup2d = c + α tind + et	-1.4367	F (1,22) 6.00*	0.022
10	Tup1d = c + α tind + et	7.9165	F (1,22) 4.79	0.039
11	Tdown1d = c + α tind + et	0.1934	F (1,22) 3.17	0.080
12	Tdown2d = c + α tind + et	0.0604	F (1,22) 1.66	0.209
13	Tdown3d = c + α tind + et	0.0004	F (1,22) 0.721	0.404
14	Tdown4d = c + α tind + et	0.0004	F (1,22) 0.036	0.850

* Significant. Reject the null hypothesis.

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Chapter 7

Broader Picture

OVERLAPPING TEMPORAL NETWORKS OF INTELLECTUALS: FROM IBN KHALDUN TO COLLINS

The purpose of this chapter is to put the huffaz in perspective as part of the intellectual community of their time with influence expanding much beyond the hadith transmission network. First, I analyze the way the huffaz handled the tension between inherited and newly discovered knowledge. Second, I explore five intellectual fields in which huffaz were involved and the variable ways they used hadith from the perspectives of these fields. Third, I highlight the role of Arabic as a *lingua franca* in the production and reproduction of the network of huffaz as an international intellectual platform expanding from Spain to the India. Fourth, I explore the relationship between inter-domain brokerage, social prominence and reported speech. I conclude with a comparison between the huffaz and New York intellectuals.

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There are striking parallels between the most recent work of Collins[1] (1997) and Ibn Khaldun (1332-1406) in their observations of the structure of intellectual communities. They both emphasize (1) the vital role of the discursive dimension in the construction and reconstruction of intellectual networks, (2) the temporal character of intellectual networks, in particular diachronic (inter-generational) relations between mentors and disciples, and (3) the stunning stratification in the intellectual community. In this chapter, I will explore if their claims are applicable to the community of the huffaz as well.

The huffaz rank high among Muslim intellectuals of their time with an authority expanding much beyond the hadith transmission network. Each hafiz was specialized not only in the field of hadith but in several other intellectual fields as well, such as law, literature, philosophy, Sufism and the like. Furthermore, they were involved in non-academic fields as well. For instance, there were imminent statesmen, viziers, housewives, and merchants among them.

Each intellectual field or discipline constitutes a relatively autonomous discourse network. The huffaz with multiple involvement successfully managed constant switching among these sociocultural domains as their intellectual involvement also shifted. At the same time, they successfully managed the tension between inherited and innovated knowledge because each generation also constituted in itself a discourse network with distinct discursive features. Despite the fact that the majority of Muslim intellectuals have been non-Arabs, Arabic served, over centuries, as the *lingua franca* between

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[1] The aforementioned work of Collins is forthcoming from Harvard University Press (Collins, Randal. Forthcoming in 1997. *The Sociology of Philosophies: A Global Theory of Intellectual Change.* MA: Harvard University Press.). I am grateful to Prof. Harrison White for letting me use the manuscript he has.

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different generations, disciplines and ethnic groups. The huffaz is no exception to this rule; each new generation of huffaz from divergent ethnic and sociocultural backgrounds also inherited and built upon not only the knowledge of Islam but the language of Arabic as well.

In this chapter, first, I will discuss the tension between inheritance and innovation in the query for truth, a tension that lies at the core of intellectual activity. I will demonstrate the role of diachronic relations through which knowledge and the language of the past are inherited by the emerging generations in the intellectual networks. This will highlight the commonalties between the activity of huffaz and other intellectual and scholarly communities from other civilizations. Sociologists who study the structure of intellectual communities commonly observe that without climbing on the shoulders of giants from previous generations, the intellectual horizons have always been closed to aspiring students in ancient and modern times.

The ancient Latin aphorism stated that "Pygmies on the shoulder of Giants see further[2]". In modern times, this saying was made famous by Newton and later by Merton[3]. Collins' most recent work on the networks of philosophers also emphasizes the

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I am also thankful to Prof. Collins for a discussion during the Networks, Languages and Identities Workshop in the Center for the Social Sciences, Columbia University, 1996.

[2] *Pigmei Gegantum humeris impositi plusqam ipsi Gigantes vident.* (Pygmies on the shoulder of giants see further than the giants.) For a detail discussion of this aphorism, see Merton's work, *On the Shoulder of Giants: A Shandean Postscript.*

[3] It is reported from Isaac Newton (1642-1727), British astronomer, mathematician, and physicist, that in a letter he said, "If I have seen further it is by standing on the shoulder of Giants." (See *The Macmillian Book of Social Science Quotations*, p. 172.) This expression shows that dependence on previous generations is important not only in Philosophy and human sciences but also in natural sciences. Yet, in human sciences, such as Hadith, this feature is brought to the front. Zeaman writes, "in natural sciences each succeeding generation stands on the shoulders of those who have gone before." See, Zeaman, David. 1959. "Skinner's Theory of Teaching Machines". In Eugene Galenter (editor), *Automatic Teaching: the State of Art.* New York: Wiley. Zeaman also says in the same place, "in social sciences each generation steps in faces of its predecessors." A comparison, as Zeaman makes, between natural and social sciences with respect to the differences in their relationship to previous generations requires undertaking a monumental research project.

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diachronic relations among intellectuals in the major civilizations of the world. His findings support the findings of earlier sociologists such as Ibn Khaldun, Merton, Zuckerman and Mullins in the sociology of science and intellectuals. I will discuss the work of Zuckerman and Mullins later (See Chapter 9).

Second, I will explore multiple lives of prominent intellectuals as members of multiple intellectual networks which require them to master different modes of discourse, distinctive to each network, and to continuously oscillate between them. For this purpose, I will highlight the overlapping areas between the network of huffaz and the networks of (1) 'reciters' of the Koran, (2) jurists, (3) historians, (4) philosophers, and (5) sufis. None of the huffaz was specialized in hadith only; rather they were accomplished scholars in a myriad of fields. For instance, they were all outstanding jurists; some of them were even more renown as jurists than as huffaz of hadith. Similarly, there were prominent philosophers, historians, sufis, and literary artists among them.

Finally, I will look at the discursive patterns connecting these networks. In particular, I will highlight the role of the Arabic language in making the (synchronic and diachronic) social connections between different spheres possible. In this conjecture, Arabic played a crucial role as a *lingua franca* in the network of huffaz. Without such a *lingua franca* neither synchronic nor diachronic expansion of the network could be possible. The communication between huffaz from different races, for example, those from Central Asia, and those from Spain, was made possible by the joint use of Arabic. Latin in the middle ages and English today are other examples of *lingua franca* in the interaction of an international intellectual community. Arabic was the only international

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language used among huffaz eventhough it was not the mother tongue of the majority of the members.

I will also show the role of metalanguage in tying these disjointed networks together through reflexive speech, in particular reported speech. Both synchronic and diachronic inter-network relations reveal themselves in discursive patterns on the level of metalanguage. Moreover, I will also argue that the attempt to eliminate dependence on discourse mediators is responsible for the intellectual drive for involvement in multiple intellectual and academic fields and joint membership in their respective social networks.

Diachronic (inter-generational) relations, which brings about the tension between inherited and discovered knowledge, must be thought of in connection with synchronic (inter-disciplinary) relations, which are responsible for the tensions between disciplines. The overlap between the networks of huffaz and other intellectual fields show that the huffaz did not merely memorize and mechanically transmit narratives of Prophet Muhammad. Instead, each generation used narrative and metanarrative as an aid in their search for the meaning of life and explored their implications in divergent fields of social practice, similar to what intellectuals from other parts of the world did with their own narratives and metanarratives.

Great huffaz severly criticized mere memorization and transmission of knowledge without critical study of content and chains of authority. According to Sakhawi, the great narrator Malik, who is also the founder of Maliki school, is reported to have said, "... Science/knowledge cannot be taken from those who exclusively rely on audition-and-memorization (sama')." Subki, another prominent hafiz, said, "the one who focuses exclusively on audition of hadith is not called muhaddith." Furthermore, Mawardi is

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reported to have said, "It [the word scholar] should not be used for the reciters of the Koran nor the community of hadith, because knowledge resides in meaning, not in what is memorized for recitation" (Sakhawi 20).

It is possible to capture the interplay among these overlapping networks by analyzing joint membership in several networks through time. Intellectual fields have relatively autonomous social networks concomitantly running across time, yet with a varying degree of overlap between them. Joint membership in several networks makes this overlap visible to us. Ibn Khaldun's *Muqaddimah* explores the development of overlapping networks of Muslims intellectuals until his time. Joint membership in multiple intellectual fields implies that these social actors play the role of broker and mediator between sociocultural domains.

Accordingly, we can say that the huffaz had other lives as well besides their involvement in the field of hadith, which must be taken into account for a proper understanding of their role as huffaz. This study concentrates on their activities in the field of hadith, yet it would be quite misleading to think of huffaz only as narrators of hadith. They comprised part of the *ulama*, or intellectual class, whose role cannot be ignored in the history of Muslim societies. For this purpose, I need to draw the backdrop against which the macro and the microstructures developed. For this purpose, I will draw upon the works of Ibn Khaldun, Sakhawi, Dhahabi, Merton, and Collins. My concept of intellectual derives from Weber (Weber, Sadri).

Intellectual Pursuit of Truth: Inherited or Innovated?

Since "new ideas are created as combinations or coalitions of old ones," (Collins 51) an intellectual cannot detach himself from past generations although for his own

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intellectual growth and independent thinking he needs a necessary amount of relative detachment from the existing society and culture. The ultimate truth or "decontextualized ideas" are what intellectuals search for, argues Collins. Yet, Collins also claims that success in the intellectual query depends on the opportunity structure in which one is placed. The opportunity one's social network affords determines his success as an intellectual.

> As we shall see in considerable detail throughout the following chapters, the basic form of intellectual communities has remained much the same for over two thousand years. Key intellectuals cluster in groups in the 1900s C.E. much as in the 400s B.C. The personal contacts between eminent teacher and later-to-be-eminent students make up the same kinds of chains across generations. And this is true even though communications technology has become increasingly available, and the numbers of intellectuals has increased enormously from on the order of hundreds in Confucius' China, to the million scientists and scholars publishing today (Collins 10)

As the following analysis will show, the huffaz also conform to the same patterns. Firstly, a hafiz is always the student of another one from an earlier generation from whom he inherits knowledge. Secondly, meeting in person is required for a transmission to gain credibility. Collins stresses in great detail the role of interaction rituals (IR) in the intellectual community. Interaction rituals, as we have already seen, are extremely important in the hadith transmission network as well. There should be at least one 'interaction ritual' between a disciple and a mentor of hadith for the connection to be accepted as valid. I have already demonstrated the self-reflexive approach to these rituals and the resulting codification of different types of interactions.

Collins repeatedly draws our attention to the importance of speech in the construction and re-construction of intellectual networks. He writes,

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> The crucial focus of an intellectual group is the consciousness of the group's continuity itself as an activity of discourse, rather than the particular contents of their discussion. ... The ritual focus is not so much on the level of particular statements and beliefs (although groups can vary a good deal in conformity on this level), but on the activity itself. The focus is on a peculiar kind of speech-act: the carrying out of a situation-transcending dialogue, linking past and future texts. A deep-seated consciousness of this common activity is what links intellectuals together as a ritual community (Collins 15).

The hadith transmission network provides an excellent example for Collins' arguments. However, since he is relying on the classical uni-layered concept of language, Collins fails to see the role of reflexive language, in particular reported speech, in linking past and future generations. As this study attests, without reflexive speech, it would be impossible to establish and maintain connections with the intellectuals from past generations.

On the Shoulders of Giants: Ancient Wisdom and Modern Query

The relationship between prominent masters and disciples is quite ambiguous. It is not a relationship of complete submission. Nor is it a relationship of complete rebellion. It is characterized by both. In hadith culture respect and loyalty to one's master(s) is emphasized; yet, relying completely on the knowledge inherited from one's master(s) deprives one from attaining high levels in the scholarly community[4]. An

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[4] Below is a list by the famous al-Sakhawi about qualifications a muhaddith (scholar of hadith), a stratum below the stratum of huffaz, must have.

> "As for the Muhaddith: He is the one who [1] knows the masters of hadith in his homeland as well as other lands; [2] has a precise knowledge of their date and place of birth and death, their ranking in the Sciences, and the various types of narratives they have in their possession; [3] differentiates those with longer chains of transmission fom those with shorter ones; [4] is able to figure out where the masters stand in the layers and the chains; [5] records them in writing; [6] recognizes the handwritings of the masters even if they vary; [7] examines critically the narratives of the masters and extracts what

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aspiring scholar is expected to develop a critical mind and build upon the intellectual heritage. Those who fail to develop these intellectual qualities are not considered huffaz. Furthermore, an aspiring student is expected to compete not only with his peers but with his masters also. As I have documented earlier, Ibn Hajar competed with his master Dhahabi and believed that he passed him. In a like manner, Suyuti competed with his master Ibn Hajar and believed that he also exceeded him (See Chapter 2 above).

Striving towards this goal brings forth a unique dichotomy whereby one may pose the question: How can innovations and discoveries emerge if aspiring scholars and intellectuals have to be closely linked to the past generations? Newton offers an intriguing perspective to this question. His answer to a question about his success elucidates that this question is based on an ungrounded assumption. Close ties to prominent intellectuals from antecedent generations do not hinder, but, on the contrary, accelerate the process of innovation. New generations build upon the work of previous generations rather than having to discover the wheel again. Creativity and innovation are for the most part outcomes of a dialogue, whether positive or negative, with the past, and thus ultimately contingent upon a deep familiarity with it.

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he considers good from their narratives as well as his own, keeping aware of such qualities of chains as "badal," "muwafaqat," "musawat," and the like (types of sound grades); [8] keeps a record of the names of his auditors even if their number is one thousand; [9] is expert in the names of narrators, particularly those subject to confusion, and obtains this discernment from the leaders in the discipline; [10] knows with precision the unusual words or names one comes across within the texts of hadith, or at least most of them, to avoid misspelling; [11] knows enough Arabic grammar to protect himself from language mistakes in most cases; [12] masters the terminology of experts in such a way as is sufficient for teaching and explanation, and [13] keeps the proper terminology respectively in this and other disciplines. The general practice is in accordance with this approach, although some were sometimes called muhaddith without actually having all of these qualifications (Sakhawi)

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Giants, however, are not many in each generation. Collins argues that a survey of the lengthy history of major cultures of the world demonstrates that the "Law of Small Numbers" applies to intellectual networks everywhere in the world, regardless of the time frame. The patterns this study unearths in the hadith transmission network also conform to the Law of Small Numbers. As I have mentioned earlier, the stratum of huffaz remained tiny in size, yet monumental in influence.

The same rule applies, even more strikingly, to the network of the Prophets of the ancient world, inspired intellectuals of their time. One man is believed to stand at the origin of the three major religions of today's world: Prophet Abraham. He can be seen as an ideal type of a seminal intellectual. Prophets of Judaism, Christianity and Islam are all believed to be his descendants. The religions expressed in the Torah, the Bible and the Koran originate from him. Jews, Christians, and Muslims, who make up almost half of the population of the world, revere him. In the tiny network of Prophets, Moses, Jesus, and Mohammed, who gained unparalleled authority in the long history of religions, honored him as their father. These Prophets are all believed to be connected to each other through a family lineage.

The ultimate truth, in that world, was transmitted through generations and the role of the intellectual was to receive, understand, practice, and build upon it. Collins shows that this pattern can be observable in all major cultures of the world from Japan to Europe, from ancient to modern times. In each major civilization, major thinkers are students of great thinkers from past generations and build their thinking on the ideas of their masters. In this regard, quite strikingly, there is no difference between the network

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structure of scholars of hadith in Islamic civilization and that of philosophers from China, India, or Europe.

Even today, 'the truth' is for the most part inherited, in varying degrees depending on the discipline, in our modern culture, notwithstanding the high value ascribed to self-discovered truth. When we examine the network of intellectuals in the modern era, we observe that they are also thickly connected to the network of prominent intellectuals from foregoing generations (Zuckerman, Mullins, Collins). In light of this, we can deduce that in modern intellectual landscape, the rise of a prominent intellectual without connection to antecedent generations of intellectuals is still impossible.

There might be an aura of superiority in the new generations towards former generations, owing to a feeling of coming closer to the truth with the help of recent discoveries. This is true especially in our modern culture because it is characterized by common faith in a linear 'progress' towards an ideal society unlike ancient cultures which believed in continuous 'decay' or 'fall' from a golden age that had existed in the remote past. Yet, contemporary intellectuals cannot do without supporting their claims with evidence drawn from the ancient masters. Works of ancient masters are, therefore, still an important part of the curriculum in modern academia and they are still cited more than most of the modern thinkers.

At this point, the following question rises: why then do we still rely, both conceptually and socially, on intellectuals from previous generations although we believe that we have far superseded them in knowledge? The explanation offered by the sociological studies is that an aspiring student must be connected to the network of prominent intellectuals if he wants to be one of them. Likewise, an aspiring author must

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link his work and ideas to theirs if he wants to add more authority to his claims. In brief, even modern intellectuals cannot dispense with the former generations although they perceive themselves as more advanced compared to the former. This poses a paradox, which will be explored further in this study.

From the Network of Prophets to the Network of Scholars

Prophet Muhammad did not claim to have brought something new[5]. He claimed that he came to restore the ancient wisdom of Abraham transmitted through generations. He placed himself in the network of the previous Prophets by establishing a continuous chain running from Abraham through Ishmael to him. Abraham was the first architect of the ancient temple, the Kaaba in Mecca, to which Prophet Muhammad ordered his followers to turn to while praying five times a day instead of building a new temple for his own.

If Suyuti is connected *via* an intellectual genealogy to Prophet Muhammad, and the Prophet is connected to Abraham *via* a familial genealogy, then, there is a connection between Suyuti and Abraham. Each new generation derives its authority over the claim for truth, for the most part, from this connection to a grandfather who lived in an unknown remote past. This is true not only for Suyuti but his Jewish and Christian counterparts as well. The case of Abraham, 'father of Prophets' and the three major religions of the world, is not the only case in the world. His counterparts can be found in the eastern part of the world as well. Examples include Buddha, Confucius and Lao-Tzu.

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[5] A general survey of sacred scriptures would show that most of the prophets and masters of the ancient world who came before Prophet Muhammad did not claim to have made new discoveries either. There is a striking contrast about the place of claim for originality between ancient and modern intellectual cultures.

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This unparalleled authority is bestowed upon Prophet Abraham although he did not leave anything written except for the excerpts reported from him orally for a long time before they were recorded in sacred scriptures. The same is true for Socrates as well. Like Abraham, Socrates also lived through the writings of his students, in particular Plato. However, this is not the common pattern in the intellectual community. In general, the authority of intellectuals is embodied in the texts inherited from them and in the works that cite them also. Accordingly, the authority of the Prophets becomes manifest even today in the discourse networks of sacred scriptures (Coward 1988, Crag 1973, Smith 1993, Graham 1987). Similarly, the authority of Plato and Aristotle is also embodied in the texts that are still passionately read and discussed in the modern world.

The above discussion demonstrated the role of diachronic network connections in the intellectual community. A connection between two intellectuals who are remote in time increases the prominence of both. Through a diachronic connection, the influence of the old master is reconfirmed and extended in time; while the new scholar gains more prominence and credibility.

Yet, this is not the only way intellectuals seek to increase their prominence. Besides endless diachronic expansion, they also try to expand their networks synchronically by establishing connections to fields other than their native discipline. The remainder of this chapter is devoted to the discussion of this phenomenon. I draw two maps, one is conceptual and the other is social. The former draws mainly upon Ibn Khaldun and shows the overlapping borders of disciplines in the intellectual space. The latter employs the data derived from the biographical dictionaries of Dhahabi and Suyuti

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about the huffaz and displays the relative overlap between the social networks of scholars from five disciplines.

Ibn Khaldun: Multiple Involvement of Intellectuals

The hadith has it that "the Truth" (al-Haqq) is one of the 99 beautiful names of Allah, or God. This approach to truth is significant because it preempts the distinction between sacred and profane domains in intellectual activity. From this perspective, the truth, regardless of the domain it belongs to, is perceived by Muslim intellectuals as a manifestation of God (sign or *ayat*) in countless ways. Therefore, those who study the signs in nature should not be seen differently from those who study religion per see. Besides, an intellectual's familiarity with God increases as he explores his countless manifestations in the world. Hence, one can think, came the encyclopedic scholarship of middle ages with multiple involvement. Yet, multiple involvement cannot be attributed only to the epistemology of the middle ages because even the leading modern intellectuals in our highly specialized age are involved in multiple domains of intellectual activity without confining themselves to one discipline.

The huffaz also followed this pattern. They did not feel content to establish themselves in one field; instead, they continuously expanded their area of interest to other intellectual domains. The huffaz were not only prominent in the field of hadith but also in several fields. Some of huffaz came to the field of hadith after they established themselves in another field while others expanded their interest after they specialized in the field of hadith.

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All these intellectual networks begin with Prophet Muhammad and recognize him as the highest authority in their field. Prophet Muhammad serves as the ideal type of a Muslim intellectual[6]. "Scholars are heirs of the Prophets," says a commonly circulated hadith. Yet, the legacy of the Prophet was so monumental that each specialized group could claim only a part of it. The reciters of the Koran (*qurra'*), scholars of hadith, jurists, sufis, and philosophers all recognize him as the supreme authority in their field and the origin of their network.

What counts for the interdisciplinary interaction and the overlap of social networks of various disciplines is not only the common origin they share but the organic connection between them on the conceptual level as well. Although they have different goals and use different epistemological premises and interpretive methods, Islamic sciences are all interconnected. The great philosopher Abu al-Hasan al-'Amiri writes,

> The religious sciences consist of three branches. One of them relies on sensual perceptions, namely, the science of the hadith scholars. The second rests on the intellect, namely the science of the religious philosophers. The third involves both sensual and intellectual perception, namely the science of jurists. Linguistics is an instrument serving all three branches (al-'Amiri 1967)[7].

According to al-'Amiri, there are theree major branches of Islamic sciences with different methods: Hadith, Philosophy, and Jurisprudence. al-'Amiri strikingly stresses linguistics as the foundation of all sciences. Hadith is an empirical vocation because it is

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[6] See Ibn Khaldun about a discussion of the knowledge of Prophets (II: 422-423). In the Koran, God orders Prophet Muhammad to introduce himself as follows: "I am merely a human being like you, to whom it has been revealed that your God is one God, be straightforward with Him and ask Him for forgiveness" (Koran 41: 5).

[7] Abu al-Hasan al-'Amiri. 1967. *Al-'Ilam bi Manaqib al-Islam.* (Ed. A. 'A. Ghurab). Cairo. I was led to this quotation by Rozenthal (*The Classical Heritage in Islam.* 1975 [1965] Tr. Emile and Jenny Marmorstein. Univesity of California, Berkley. p. 63)

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primarily based on sense perception and data collection whereas philosophy is a rational vocation because it is solely based on reasoning. Jurisprudence, on the other hand, incorporates both methods.

A medieval Muslim intellectual had to master these sciences without any exception before becoming part of the ulama class. Ibn Khaldun summarizes the basic education of a scholar in his time as follows:

> He must study the Qur'an, both with reference to the manner in which it has been transmitted and related on the authority of the Prophet who brought it from God, and with reference to the differences in the readings of the Qur'an readers. This is the science of Qur'an reading.
>
> Then, he must study the manner in which the Sunnah is related to its originator (Muhammad), and he must discuss the transmitters who have handed it down. He must know their circumstances and their probity, so that the information one receives from them may be trusted and so that one may be able to know the part of it, in accordance with the implications of which one must act. These are the sciences of tradition.
>
> Then, the process of evolving the laws from their basic principles requires some normative guidance to provide us with the knowledge of how that process takes place. This is the (science of the) principles of jurisprudence.
>
> After one knows the principles of jurisprudence, one can enjoy, as its result, the knowledge of the divine laws that govern the actions of all responsible Muslims. This is jurisprudence.
>
> Furthermore, the duties (of the Muslim) may concern either the body or the heart. The (duties of the heart) are concerned with faith and the distinction between what is to be believed and what is not to be believed. This concerns the articles of faith which deal with the essence and attributes (of God), the events of the Resurrection, Paradise, punishment, and predestination, and entails discussion and defense of these subject with the help of intellectual arguments. This is speculative theology.
>
> The discussion of the Qur'an and *hadith* must be preceded by the (study of the) philological sciences because it is based upon them. There are various kinds, such as lexicography, grammar, syntax, and style, and literature (Ibn Khaldun II: 437-438).

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Implicit in the account of Ibn Khaldun is that the narrative influences both the external and internal life of social actors. Ibn Khaldun as a sociologist stresses the connection between intellectual culture and daily life by pointing out that the purpose with all this knowledge is to "enjoy ... the knowledge of the divine law that governs the actions of all responsible Muslims." Jurisprudence links the narrative to social life (Reinhart). Berman (1983) shows that religious narrative in the West also permeated to daily life in medieval Western history through jurisprudence.

Ibn Khaldun's approach is not exclusively focused on the external dimension of social actions either. This can partly be attributed to the fact that Islamic jurisprudence, unlike its counterparts in the west, is more comprehensive. Yet, at this point, both philosophy and Sufism, or *Tasawwuf,* come into play as well. Ibn Khaldun himself made his living for a while as a jurist of Maliki School and is still considered one of the great authorities on Sufism.

More important than the role of Jurisprudence is the role of linguistic and literary studies in linking narrative to the daily lives of individuals. Linguistics and human sciences were part of standard education at the time of Ibn Khaldun because they are considered as prerequisites for the study of the Koran and hadith. Consequently, a hafiz could not do without a solid knowledge of jurisprudence as well as Linguistics and what is today called Human Sciences.

Ibn Khaldun's account displays how the narrative permeates into life *via* channels paved by Linguistics, Literary disciplines, and Jurisprudence. Hence comes the overlap between the network of intellectuals specialized in these disciplines. Now, we can have a

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closer look at the overlap between the network of the huffaz and the networks of reciters of the Koran, jurists, philosophers, historians, and sufis.

In this *Muqaddimah,* Ibn Khaldun designated a long section to the analysis of sciences and intellectuals (See Chapter VI of *The Muqaddimah,* which is more than one third of the book). He analyzed each discipline separately and also showed the interconnections between disciplines. Since I have also shown the relations between disciplines on the conceptual level, now we can look at the overlap between the networks of the huffaz and those of the reciters of the Koran, jurists, historians, philosophers and sufis.

The Overlap between Networks of Huffaz and Reciters of the Koran

The Koran has a special way of recitation known as *Tajwid* (Crag 1973, Jomier 1983, Jones 1983, Norris 1983, Paret 1983, Zubaidi 1983). According to Islamic faith, not only the Koran, but also the way it is chanted was revealed to Prophet Muhammad also. The only way to preserve this vocal art was through oral transmission, although later it developed as a branch of traditional Islamic sciences with its rules recorded in writing. Moreover, the recitation of the Koran was not in one dialect but in different dialects of the Arabic language in that time. Scholars recorded, first in their memory and later in their writings, the different dialects in which the Koran was recited at the time of the Prophet. The various ways the Koran was recited in these dialects, which are reported to be ten in number, are also transmitted orally to the future generations. Those scholars who specialized in the vocal arts of the Koran are called *qurra'* or reciters/readers. They

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are also organized in a social network of masters and disciples across generations with a history recorded in a rich literature of biographical dictionaries.

The network of the Koran transmission is similar to, yet expectedly much larger than, the network of hadith transmission. It still continues even today. Recitation of the Koran by highly reputable readers is still a public event in Islamic countries, with radios broadcasting 24 hours a day. The reciters transmit not only the text of the Koran but the way it is properly recited according to the rules of *Tajwid* that became crystallized later in Islamic history after the time of the Prophet. We can say that it also followed similar patterns traditional vocal arts usually followed in other cultures. Many vocal arts in the modern world today also have their roots in the remote past and owe their existence to the oral transmission between mentors and apprentices over centuries. Ibn Khaldun briefly elucidates the way Koranic recitation evolved into a discipline as follows.

> The Qur'an is the word of God that was revealed to His Prophet and that is written down between the two covers of copies of the Qur'an (*mushaf*).
>
> Its transmission has been continuous in Islam. However, the men around Muhammad transmitted it on the authority of the Messenger of God in different ways. These differences affect certain of the words in it and the manner in which the letters are pronounced. They were handed down and became famous. Eventually, seven specific ways of reading the Qur'an became established. Transmission (of the Qur'an readings), with their particular pronunciation, also was continuous. They came to be ascribed to certain men from among a large number of persons who had become famous as their transmitters. ....
>
> Qur'an readers continued to circulate and transmit those readings, until the sciences were fixed in writing and treated systematically. Those readings, then, were set down in writing, along with the other sciences, and became a special craft and science in itself. People in the East and in Spain handed them down generation after generation (Ibn Khaldun II: 439-440).

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The organization of the biographical dictionaries of the *qurra'* is similar to the organization of the biographical dictionaries of huffaz. The great hafiz Dhahabi has a monumental dictionary of *qurra'*. Dhahabi himself was an imminent scholar of Koranic recitation and was trained under the greatest masters of his time. Similar to his biographical dictionary on huffaz, which is the primary data source of the present work, Dhahabi also classified the temporal network of readers of the Koran in layers until his time.

The network of *qurra'* begins with Prophet Muhammad (I: 1)[8]. It is believed that the Koran was revealed to him not only as a text but also as a 'melody', whose rules constitutes the subject matter of the discipline of *Tajwid.* Based on this belief, not only the text of the Koran but the way it is recited is based on divine revelation also. Recitation of the Koran according to the rules of *Tajwid* is still intact among the Muslims. According to this discipline, Prophet Muhammad learned the particular way the Koran was recited from Archangel Gabriel and practiced it among his Companions.

Some of the Companions of the Prophet were, expectedly, more talented than others in the recitation of the Koran. They became the mentors for the next generation. Only very few Companions were prominent in both fields, hadith and Koran. Among them were Ibn Mas'ud (II: 6), Abu Musa al-Ash'ari (II: 11), Zayd bin Thabit (II: 16), 'Alqama bin Qays (II: 25), 'Uqba bin 'Amir (II: 21). Although the number of Companions who specialized in the disciplines of hadith and the Koran alone are much higher, there are only six Companions who were prominent in the both fields.

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[8] The numbers indicate the codes assigned to huffaz in HADITHNET dataset. The roman numbers denote the layer of the scholar while the Arabic numbers indicate the code of scholars in the hadith transmission network.

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Given its subject matter, the Science of Recitation was mainly based on oral tradition and training required interpersonal contact. These interactions had been recorded by the succeeding generations as new students were trained under great masters in each generation. In the generation of Successors also, some great huffaz were at the same time great *qurra'*. Among them are Abu Abdirrahman al-Sulami (III: 44), Abu al-Aliya (III: 51).

The following is a brief list of huffaz who were at the same time considered among imminent *qurra'* in the subsequent layers.

Layer 4: Sa'id bin Jubayr (IV: 74), Mujahid bin Jabr (IV: 84), al-A'raj (IV: 90).
Layer 5: Qatadah bin Diama (V: 107).
Layer 6: Abu al-Zubayr (VI: 114), Ibn Abi Layla (VI: 166), Amr bin al-Harith bin Ya'qub al-Ansari (VI: 180), Shayban bin Abdirrahman (VI: 205), Hammad bin Zayd bin Dirham (VI: 214).
Layer 7: Abu Bakr bin 'Ayyash (VII: 251), Isa bin Yunus (VII: 262), Abdah bin Sulayman (VII: 291),
Layer 8: Umar bin Harun (VIII: 324), Husayn al-Ju'fi (VIII: 337), 'Ubaydullah bin Musa (VIII: 344), Yunus bin Muhammad (VIII: 354), al-Muqri' Abu Abdurrahman (VIII: 362), Abdullah bin Salih bin Muslim (VIII: 391), Zakariyya bin Adiyy bin al-Salt bin Bistam (VIII: 397), al-Hawdi (VIII: 409), Abu al-Jamahir (VIII: 413), Ismail bin Abi Uways (VIII: 416),
Layer 9: Hisham bin Ammar (IX: 459), al-Zahrani (IX: 481), Yunus bin Abd al-a'la (IX: 546),
Layer 11: Musa bin Ishaq bin Musa (XI: 689), al-Husayn bin Fahm (XI: 702), Abu Ja'far Muhammd bin Jarir al-Tabari (XI: 729), al-Mutarriz (XI: 731), Ibn Abi Dawud (XI: 769),
Layer 13: Ibn al-Anbari (XIII: 822), Ibn al-Munadi (XIII: 829), Ibn Muzahir (XIII: 855), Ibn al-Haddad (XIII: 867), al-Naqqash (XIII: 873), al-Tabarani (XIII: 876), al-Hajjaji (XIII: 896), Ghundar (XIII: 905), al-Daraqutni (XIII: 926),
Layer 14: al-Hakim (XIV: 963), al-Qabisi (XIV: 983), Atiyya bin Sa'id (XIV: 990), al-Talamanki (XIV: 995),
Layer 15: al-Dani (XV: 1007),
Layer 16: Ibn Sukkarah (XVI: 1060), al-Narasi (XVI: 1065),
Layer 17: Ibn Hubaysh (XVIII: 1102),
Layer 18: Ibn Khayr (XVIII: 1109), Abu Umar bin 'Iyadh (XVIII: 1110), Ibn 'Ubaydillah (XVIII: 1112), Ibn al-Husari (XVIII: 1115), al-Tajibi (XVIII: 1122),
Layer 19: Ibn al-Qurtubi (XIX: 1123), al-Dubaythi (XIX: 1135),

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Layer 21: Ibn al-Taylasan (XIX: 1140), Ibn al-Zubayr (XXI: 1170),
Layer 22: al-Dhahabi (XXII: 1178), al-Qutb al-Halibi (XII: 1179), Ibn Abdilhadi (XXII: 1181),
Layer 25: Ibn al-Jazari (XXV: 1217).

The above list shows that there are only 68 highly prominent *qurra'* among the huffaz. Besides the title *qurra'*, they are also known as "*muqri'*," and "*mujawwid.*" This number might go up if we were to include each hafiz who had an interest in the Science of Recitation, or *ilm al-qira'ah.* Not only the huffaz, who were prominent intellectual of their time, but each ordinary Muslim who learns how to read the Koran also learns the basics of *Tajwid.*

The limited overlap between the networks of scholars of hadith and the Koran is expected because the two constitute the sources of Islamic law and theology. A religious intellectual must hold the Koran as the supreme authority even above hadith. Yet, he will be dependent on the hadith literature as the most important commentary of the Koran. Hadith puts the Koranic verses in context by providing detailed information about the social, the cultural and the historical circumstances in which they were revealed to, and dictated by, the Prophet. Furthermore, in the production of Islamic law, the Koran and hadith complement each other. Below, I will explore this relationship further.

The Overlap between Networks of Huffaz and Jurists

A hafiz has to be at the same time a jurist. This is one of the most important prerequisites in order to be accepted as a hafiz. A scholar of hadith who is not well-versed in jurisprudence cannot go further in the hierarchy of scholarship. He might stay in the lower ranks of the intellectual hierarchy forever. The following excerpt illustrates the culture of the huffaz on this issue.

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> Al-Fariqi said: "The term should not be used for those who know chains of hadith but not the legal rulings derived from them. For one cannot be counted among the scholars of the law with only the former amount of knowledge." His student [Sharaf al-Din `Abd Allah ibn Muhammad] Ibn Abi `Asrun [al-Tamimi al-Shafi`i 492/1099-585/1189] als followed him in his book "al-Intisar" [The Victory]. Ibn Hajar stopped short of this view and said: "This is overemphasis because the divisions [of hadith sciencs] are fourfold, the highest of which being the abundance in audition (sama`) and the knowledge of chains and their defects." I say: Perhaps the first two refused to call such a person muhaddith only because, literally speaking, he is a "musnid," i.e. one who simply conveys chains of authorities [without critiquing them]. The rest, however, use the term muhaddith figuratively (Sakhawi 19).

One of the most important usages of hadith in Islam is in deriving legal and moral rules (Coulson 1964, Reinhart 1995). In this regard, the authority of hadith is the second in Islam only to the Koran. These rules are not restricted to a particular sphere of life. Since, hadith is the second source of Islamic law and theology, the high degree of overlap between the network of hadith and jurisprudence, or *fiqh,* is expected. The Sunnah, the conduct of the Prophet, provides the best example for his followers to emulate in their transactions and other affairs.

> ...[a]t the beginning Islam had no sciences or crafts. That was due to the simple conditions (that prevailed) and the desert attitude. The religious laws, which are the commands and prohibitions of God, were in the breasts of the authorities. They knew their sources, the Qur'an and the Sunnah, from information they had received directly from the Lawgiver (Muhammad) himself and from the men around him. The people at that time were Arabs. They did not know anything about scientific instruction or the writing of books and systematic works. There was no incentive or need for that. This was the situation during the time of the men around Muhammad and the men of the second generation. The persons who were concerned with knowing and transmitting the (religious laws) were called "Qur'an readers," that is, people who were able to read the Qur'an and were not illiterate. Illiteracy was general at that time among the men around Muhammad, since they were (Arab) Bedouins. People who knew the Qur'an were at that time called "Qur'an readers" with reference to the

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> fact (that they were literate). They read the Qur'an and Sunnah, which were transmitted from God, (in order to know the religious laws,) because the religious laws were known only from the (Qur'an) and from the traditions which are mostly explanations of and commentaries upon, the (Qur'an). Muhammad said: "I left among you two things. You will not go astray as long as you hold on to them: the Qur'an and my Sunnah." (Ibn Khaldun III: 312).

Each hafiz is at the same time part of the network of jurists because the scholars of hadith are not considered hafiz unless they are fully aware of all of the possible legal implications of the narratives they have handled. Consequently, part of the requirements to become a hafiz is knowing divergent ways hadith is used in Islamic law by different schools as a foundation for legal rulings. The great hafiz Dhahabi is reported to have listed the steps a student of hadith must take as follows:

> Today, the student of hadith should first copy by hand "al-Jam` bayn al-Sahihayn" [Convergence of the Two Sound Books (Bukhari and Muslim)], "al-Ahkam" of `Abd al-Haqq (this is "al-Ahkam al-shar`iyya" [The Legal Rulings] by Abu Muhammad `Abd al-Haqq ibn Abd al-Rahman Ibn al-Kharrat al-Ishbili [1116-1185 CE], and "al-Diya'". He should master these books. Also, he should frequently study the works of al-Bayhaqi, for they are beneficial. He should also study no less than a concise book like "al-Ilmam" (Muhammad ibn `Ali Ibn Daqiq al-`Id [1228-1302 CE], "al-Ilmam fi ahadith al-ahkam" [The acquaintance with the prophetic narrations which serve as basis for legal rulings]), and teach it (Sakhawi 21).

Abu Shama is reported to have said on the same issue:

> Imam Abu Shama [595-665 H] said: "Today the sciences of hadith are three. The most honorable one is the memorization of the texts, the knowledge of rare hadith, and its relation to jurisprudence. The second is memorizing the chains of transmission, knowing the narrators, and discerning the reliable chains from the problematic ones. This used to be paramount, but now it suffices for the student of the Science to know what is compiled and written in this branch, and there is no benefit in redoing what is already done. The third is collecting, writing, hearing, and

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> learning the various chains through which a hadith has been narrated, searching for the shortest chains and traveling for this purpose. But the one who focuses on this is diverted from the most important of the useful sciences [i.e. the first], in addition to being distracted from the actions which are the primary purpose: Allah the Most High says: "I have not created jinns and humans except to worship me" (51:56). However, it is acceptable for those who have freed themselves from distractions to spend time in this third branch because it helps perpetuate the unbroken "from" chains (silsilah al-`an`anah al-muttasilah) back to the most honorable of mankind, God's blessings and peace be on him. These chains are one of the pecularities of this Community."
>
> He also said: "One should stay away from that which is commonly shared by the young and the old, the mediocre and the intelligent, the ignorant and the scholar" (Sakhawi 22)

The views of Al-A`mash (Abu Muhammad Sulayman ibn Mahran al-Asadi the Tabi`i 61/681-148/765) on the relationship between law and hadith are summarized in the following excerpt:

> Al-A`mash said: "The hadith that jurists circulate among themselves is better than that which hadith narrators circulate among themselves." Someone criticized Imam Ahmad bin Hanbal, may Allah have mercy upon him, for attending the circle of Imam Shafi`i and leaving the circle of Sufyan ibn `Uyayna. Ahmad told him: "Keep quiet. If you miss a hadith with a shorter chain you can find it with a longer chain and it will not harm you. But if you do not have the reasoing of this man [Shafi`i] I am afraid you will not be able to find it." His words ends here (Sakhawi 23).

Ibn Hajar, the last Shaykh al-Islam, who came later, followed the same tradition, as made clear by the following account from him.

> Ibn Hajar said: there is some disagreement in some of the above doctrine. Abu Shama's view that "it suffices for the student of the Science [of hadith] to know what is compiled and written in this branch" was rejected by the Savant Abu Ja`far ibn l-Zubayr and others. The argument can be made against him in the following way: If the amount of compilations that have been written in the first branch makes reliance upon them necessary without need for pursuing its sources, then the same

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> can be said about the first branch which Abu Shama says about the second (i.e. that "it suffices for the student of the Science to know what is compiled and written in this branch"), for the books written on the jurisprudence of hadith and the rare hadith cannot be numbered.
>
> Indeed, if someone were to claim that the works in the latter fields (jurisprudence and rare hadith) are more numerous than the works about personality criticism and the works that distinguish the sound hadith from the unsound, he would not be far from the truth. To be sure this is the reality. If studying the first branch is important, then the study of the second branch becomes even more important, for it is the staircase that leads to the first. Therefore, whoever neglects the second science (according to Abu Shama's classification) is bound to mix unwittingly the unsound hadith with the sound and the narrator who is considered trustworthy with the unreliable. That is enough blame for such a method.
>
> The truth is, both the first and the second science are important in the Science of hadith. There is no doubt that whoever can master both will attain the highest station, even if he is remiss in the third, while he who neglects the first and second can have no part in being called a hadith master (hafiz). As for he who masters the first but neglects the second, he remains far from the definition of hadith scholar (muhaddith), while he who masters the second and neglects the first may still be called a muhaddith, although there is a deficiency in him with regard to the first science (Sakhawi 23).

Jurists, on the other hand, rely on hadith material in the construction of laws (*ijtihad, fatwa, hukm,* and the like) and thus are required to have a solid foundation on hadith literature. Islamic law has four major sources: the Koran, *Sunnah* (exemplary behavior of the Prophet recorded in the hadith literature), analogy, and consensus[9]. Thus each school of law developed its own methodology for the criticism of chain of authorities and text of narratives. In fact, most of the debate among jurists revolve around the use of hadith.

The laws constructed by a scholar has to compete with countless other laws for public acceptance. In the process of selection, foundations of the rulings in hadith play a highly crucial role. If a ruling is based on weak hadith with a blurry indication, it has a

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little chance to gain public acceptance. In contrast, if an alternative ruling on the same issue is based on a solid hadith with a clear indication of meaning, it will gain easy acceptance.

Therefore, all major jurists have to be at the same time prominent scholars of hadith. The founders of the four major schools of law (Hanafi, Maliki, Shafii, and Hanbali) are also listed among the huffaz. Imam Ja'far al-Sadiq, the founder of Jafari school, is also listed as a hafiz by Dhahabi. The founders of other schools of law, which did not survive until today, such as al-Tabarani, Dawud al-Zahiri and the like, are also renown huffaz. Although there has been almost unanimous recognition over the centuries of these great scholars as huffaz and jurists, they have not been completely immune from criticism.

Similar to other prominent intellectuals, their reputation and place in the hierarchy of intellectuals have also been occasionally contested. The jurists who came to the field of hadith later in their lives are usually criticized for being incompetent in the field of hadith. Likewise, the huffaz who came to the field of hadith later in their lives are criticized for not being competent in jurisprudence. Frequently, polemics among opponents from different schools also induced this sort of criticism. For instance, Abu Hanifa was sporadically criticized by his opponents for having insufficient knowledge of hadith, whereas Ibn Hanbal was criticized for not using his own reasoning and completely relying on inherited knowledge. These two highly imminent scholars draw criticism for standing at the edges of the spectrum in Islamic Jurisprudence that runs from reliance on personal opinion (Abu Hanifa) to reliance on inherited material (Ibn Hanbal).

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[9] The following hadith is used to support the method of consensus in the production of laws: "My

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There is a manifold literature about the network of jurists in Islamic history. Similar to the hadith transmission network, they are also organized in layers with the Prophet and his Companions standing at the top of the hierarchy. Some of these works are general in their focus while others are more specialized; there are biographical dictionaries about jurists from a particular school, or from a particular city[10].

The Overlap between Networks of Huffaz and Philosophers

Another important usage of hadith is in Islamic philosophy and theology. A hafiz is required to know theological and philosophical implications of the hadith he is dealing with. The huffaz are in general traditional philosophers who advocate that the ultimate truth resides in the Koran and hadith. This creed does not mean that they give no role to reasoning. On the contrary, there is still much room for speculation and debate because delegating authority to the scripture does not entirely solve the philosophical problems. Then, emerges the question of interpretation of the texts of the Koran and hadith. Hence comes the major division in Islamic theology between those who give priority to individual thinking in the interpretation of texts and those who refer to other texts. If the latter group cannot find an interpretation in other texts narrated from the Prophet and his Companions, they refuse further speculation.

Following is a list of the names of the some of the huffaz whose names also appear in the network of highly prominent Muslim philosophers Collins comparatively analyzed. Hasan al-Basri (IV: 67), Abu Hanifa (VI: 164), Al-Awza'i (VI: 178), Ja'far al-

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community will never agree on an error."

[10] See for example, the work of al-Shirazi (AH 393-486) *Tabaqat al-Fuqaha* (Layers of Jurists) and the work of al-Musannif (d. AH 1014) *Tabaqat al-Shafi'iyya* (Layers of Shafi'is) (Both works are prepared for publication by Khalil al-Miys. Beirut: Dar al-Qalam.)

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Sadiq (VI: 163), Malik bin Anas (VI: 200), Muhammad al-Shaybani (great jurist-philosopher but not listed as hafiz by al-Dhahabi), Abu Yusuf (VI: 274), al-Shafi'i (VII: 355), Ibn Hanbal (IX: 439), al-Bukhari (X: 578), Muslim (X: 614), al-Hakim al-Tirmidhi (XI: 669), al-Tabari (XI: 729). I intentionally focus on these names that are derived from a recent study by a modern sociologist to demonstrate how pervasive the influence of the huffaz is outside of their native sphere[11].

The founders of the four major schools of law (Abu Hanifa, Shafi'i, Malik and Ahmad bin Hanbal) occupy prominent positions in the network of philosophers, besides their prominence in the network of jurists and huffaz. Ja'far al-Sadiq, the founder of Ja'fari school, was one of teachers of Abu Hanifa. Abu Yusuf and Muhammad al-Shaybani were the two major students of Abu Hanifa in the Hanafi School of law. Bukhari and Muslim, the authors of the most commonly accepted canonical compilations of hadith, were also prominent philosophers.

The Overlap between Networks of the Huffaz and Historians

Hadith can be seen as a history of the first century of Islamic society (Duri, Khalidi, Margoliouth, Nicolson). Yet, the approach of historians and scholars of hadith to history and time are different. Historians use a linear time to organize their material in

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[11] Collins' account of Muslim philosophers is far from being conclusive because his data comes from recent surveys of Islamic philosophy in English, mostly written as textbooks. The sources he uses in selecting and ranking the Philosophers include Fakhry (1983), Watt (1973, 1984), Hodgson (1974), Wolfson (1976), Rescher (1964, EP 1967). These modern works are derived from classical works of such scholars as Ibn al-Nadim (ca. 990), al-Baqillani (1000), 'Abdulqadir al-Baghdadi (1030), al-Ghazzali (1090), al-Shahrastani (1130), and Ibn Khaldun (1380). The ranking is based on how much space each Philosopher occupies in these works. The method can be more useful in measuring the prominence of philosophers in modern English speaking academia. It is less reliable in measuring their prominence in their own time, or in today's Muslim world. Collins skillfully puts these data in use to demonstrate the "law of small numbers," and the intergenerational character of the network of philosophers. The network patterns demonstrated by the network of Muslim philosophers Collins analyzes is strikingly similar to the

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a consecutive order. Scholars of hadith, however, use disjointed narrative and are not concerned with ordering their narrative on linear time. Consequently, the genres of historians and hadith scholars reflect clear differences despite the fact that they handle the same material. Difference in style gave rise to two different discourse networks.

Although disjointed structure characterizes the narrative of hadith, some scholars of hadith had also mastered the genre of history as well. These scholars were involved both in the network of hadith and history. Some of the huffaz who were at the same time historians are as follows: Abu Ma'shar al-Sindi (VI: 222), al-Walid bin Muslim (VII: 283), Yunus bin Bukayr bin Wasil (VII: 311), Hisham bin al-Kalbi (VIII: 327) (Akhbari), al-Waqidi (VIII: 335), al-Shafi'I (VIII: 355) (Ayyam 'Arab or Pre-Islamic Arab history), al-Farra' Yahya bin Ziyad (VIII: 369) (Akhbari), Abu Umar al-Darir (VIII: 411) (Akhbari), Muhammad bin Sa'd (IX: 432), Sa'id bin Ufayr (IX: 436), Abu Khaythamah (IX: 443), Umar bin Shabbah (IX: 534), al-Zubayr bin Bakkar (IX: 547), Ahmad bin Abi Khaythamah (X: 620), Muhammad bin Aqil (XII: 784), al-'Assal (XIII: 855), Abu al-Arab (XIII: 857), al-Azdi (XIII: 863), Abu Sa'id bin Yunus (XIII: 866), Ibn Hibban (XIII: 880), Ibn 'Allan (XIII: 881), Ibn al-Ji'abi (XIII: 882), Ahmad bin Musa bin Isa (XIII: 921), Abu Zur'ah al-Astarabadhi (XIV: 934), Ibn al-Furat (XIV: 947), al-Hakim (XIV: 963), Abu Abdirrahman al-Sulami (XIV: 964), Abu Muhammad al-Azdi al-Misri (XIV: 965), al-Idrisi (XIV: 974), al-Walid bin Bakr bin Makhald (XIV: 984), Abu Nu'aym (XIV: 994), al-Mustaghfiri (XIV: 997), Ibn Mama (XV: 1004), Ibn Abdilbarr (XV: 1014), al-Khatib (XV: 1016), Ibn Hazm (XV: 1017) (Akhbari), al-Harawi (XV: 1029), Abu al-Qasim al-Shirazi (XVI: 1040), Abu Ghalib al-Dhuhli (XVI: 1053),

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network patterns this study identified and analyzed in the network of the huffaz.

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Shiruyah bin Shahrdar (XVI: 1064), al-Sam'ani (XVI: 1069), Abu al-Hasan al-Farisi al-Nisaburi (XVI: 1074), al-Batruji (XVII: 1081), Ibn al-'Arabi (XVII: 1082), 'Iyad bin Musa al-Qadi (XVII: 1084), al-Fami (XVII: 1087), al-Sam'ani (XVII: 1091), Ma'mar bin Abdilwahid bin Raja' (XVII:1092), Ibn 'Asakir (XVII: 1095), Ibn Bashkuwal (XVIII: 1098), Ibn al-Jawzi (XVIII: 1099), al-Suhayli (XVIII: 1100), Ibn al-Athir (XIX: 1125), al-Milahi (XIX: 1128), Ibn al-Najjar (XIX: 1141), al-Bakri (XIX: 1148), Ibn al-Kamad (XX: 1157, Abu Shamah (XX: 1158), Ibn al-'Imadiyyah (XXI: 1161), Ibn al-Sa'i (XXI: 1162), Ibn al-Zubayr (XXI: 1170), Ibn al-Futi (XXII: 1174).

The total number of hafiz-historians scholars is 63. Their first appearance in the network of the huffaz coincides with the sixth layer. This may be attributed to the phase of specialization in the intellectual community of the time because before that point hadith and history were not so clearly differentiated as two separate disciplines. History was born from hadith and greatly benefited from its methods. "The study of the Prophet's biography was developed by historians from among the scholars of *hadith*, not by storytellers" (Duri 10). The genre of history emerged first through an interest in the battles of the Prophet. This gave rise to a discipline called *Maghazi* (Jones 1983, Kister 1983). "The founder of *maghazi* studies appears to have been the famous jurisconsult and *hadith* scholar 'Urwa ibn al-Zubayr (d. 94/712)[12], since he was the first to compose a book on the *maghazi*" (Duri 25, Monroe 1983). The following excerpt from Duri summarizes how the genre of hadith gave rise to the genre of history.

> The study of *maghazi,* or military expeditions of the Prophet, began in Medina in conjuction with the study of *hadith.* The scholars of *hadith* continued to show interest in the *maghazi,* but some of them, in studying

[12] The first date is for AH, after hijrah, the second for CE, common era.

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> the life of the Prophet, began to do so in a manner which moved beyond the limitations of the juridical aspects of the subject. The pioneers of *maghazi* studies were scholars of *hadith,* as is confirmed by the way in which the learned regarded the *maghazi* authors. This also explains the importance of *isnad,* the chain of authorities transmitting a report, in assessing the value of the *maghazi;* this meant that the value of a *hadith* or other account depended upon the reputation of *hadith* scholars or transmitters who figured in the chain of authorities. This point of view very early on gave rise to a critical attitude towards *ruwat,* the sources who transmitted the information. It introduced the element of investigation and inquiry into gathering of the various accounts, and laid a firm foundation for historical studies. On the other hand, narratives and popular tales about *maghazi* were also passed along by word of mouth. Storytellers, the *qussas,* went to great lengths in relating these accounts and turned them into a kind of folklore, but although some of this did in later times find its way into certain biographies of the Prophet, the attitude towards transmitted accounts, and the methods employed in their criticism, essentially continued to follow the methodology of the scholars of *hadith* (Duri 23-24).

The historians who are specialized on the history of the Christians and Jews derived extensively from the Bible in the explanation of historical events are called "*akhbariyyun*" (men of reports). There is no unanimous approach among Muslim historians towards whether Biblical accounts can be used as a reliable source in historical research. Akhbari historians adopt a more favorable approach towards using the Bible and other Jewish and Christian historical sources.

There is yet another genre pertinent to history: story or *qissa*. Historians and scholars of hadith had criticized *qissa* (story) genre for deviating from empirical narrative and involving fiction to produce attractive stories (Berkey 1995). There is only one scholar among the huffaz who is also known as *qass,* a storyteller: Abu Idris al-Khulani

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(or Khawlani), who was a prominent jurist and the justice and preacher of Damascus[13] (III: 40).

The Overlap between Networks of the Huffaz and Sufis

Another usage of hadith is in Sufism because hadith literature reflects the way Prophet Muhammad emphasized moderation in satisfying cardinal desires and controlling mundane passions[14]. Sufism has a myriad of forms. Common to all is the goal of reaching the Truth (al-Haqq)—the objective of intellectuals, not *via* reason or sense perception but via experience of heart[15]. The following excerpt should be read in connection with the above excerpt from al-'Amiri who classified the traditional Islamic sciences according to the methods they employed. He argued that the Science of Hadith employs methods that primarily make use of sense perceptions, Philosophy/Theology employs methods that rely principally on intellect, and Jurisprudence combines both methods. Ibn Khaldun adds to this list a new method, namely experience of *dhikr,* a method that, according to him, supersedes all other methods.

> Mystical exertion, retirement, and *dhikr* exercises followed by the removal of the veil (*kashf)* of sensual perception. The sufi beholds divine worlds which a person subject to the senses cannot perceive at all. The spirit

[13] "Kana wa'iz ahl Dimashq wa qassihim wa qaadihim" (Dahabi).

[14] He himself led a very humble life before and after he became a prophet. Although he was the president of the first Islamic state, he did not have a palace or a comfortable home, instead, he and his family lived in small rooms next to the first Mosque in Medina where people prayed on sand because the floor was not carpeted. He said: "poverty is my pride." He and his family accepted only the gifts given to them by the Companions but not a regular salary or compensation from the treasury of the state. He also said: "I am sent only with the purpose of completing good manners." Yet, at the same time, he forbade asceticism and celibacy for his followers

[15] "This science belongs to the sciences of religious law that originated in Islam. Sufism is based on (the assumption) that the method of those people (who later on came to be called Sufis) had always been considered by the important early Muslims, the men around Muhammad and the men of the second generation, as well as those who came after them, as the path of truth and right guidance" (Ibn Khaldun III: 76).

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> belongs to those worlds. The reason for the removal of (the veil) is the following. When the spirit turns from external sense perception to inner (perception), the senses weaken and the spirit grows strong. It gains predominance and a new growth. The *dhikr* exercise helps to bring that about. It is like food to make the sprit grow. The sprit continues to grow and to increase. It had been knowledge. Now, it becomes vision. The veil of sensual perception is removed, and the soul realizes its essential existence. This is identical with perception. (The spirit) now is ready for the holy gifts, for the sciences of the divine presence and for the outpourings of the Deity. Its essence realizes its own true character and draws close to the highest sphere, the sphere of the angels. The removal of (the veil) often happens to people who exert themselves (in mystical exercise). They perceive the reality of existence as no one else (does) (Ibn Khaldun III: 81).

Sufis constituted a separate discourse network. Not only the methods but the language they used set them apart from the rest of the community of intellectuals of the time as well. Ibn Khaldun draws our attention to the way sufis created their own genre.

> Furthermore, the Sufis have their peculiar form of behavior and a (peculiar) linguistic terminology which they use in instruction. Linguistic data apply only to commonly accepted ideas. When there occur ideas not commonly accepted, technical terms facilitating the understanding of those ideas are coined to express them (Ibn Khaldun III: 79).

Hadith scholars in general and Sufis in particular saw the preoccupation with hadith as a way to get closer to God, but not a means to gain fame or social status. The great huffaz have emphasized piety and criticized those who did not live up to the contents of the narratives of the Koran and hadith. Sakhawi writes,

> How well did the hadith master Abu `Abdullah al-Dhahabi (d. 748 H) speak in what I read by his own handwriting about the above -- even if he exaggerated, nevertheless he is excused: "Most of the hadith scholars have no understanding, no diligence in the knowledge of hadith, and no piety towards it. Worse, the sound and the forged look alike to them. The

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> narrators do not correct their manners according to the ethics of hadith, and never wake up from the stupor of audition. At one and the same time a scholar hears a book and his ego entertains the prospect of teaching it, in fifty years perhaps? Woe to you! How long is your hope, how evil your works! Verily Sufyan al-Thawri is excused for saying according to the narration of Ahmad ibn Yusuf al-Taghlabi: Khalid ibn Khidash narrated to us that Hammad ibn Zayd narrated to us that Sufyan al-Thawri said: "If hadith was good it would have vanished just as goodness has vanished."
>
> "By Allah he has spoken the truth. What good is there in hadith where the sound is mixed with the unreliable, while you do nothing to sift one from the other, or to research its narrators, and you do not practice it nor fear God concerning it? Today, in our time, the quest for knowledge and hadith audition no longer means for the muhaddith the obligation of living up to it, which is the goal of hadith. The basis of hadith audition has become the prestige of narrating it. This, by God, is not for the sake of God! I am only addressing you, O hadith narrator -- not those who do not listen, think, keep the five daily prayers, shun corruption and intoxicants, and strive for perfection in speaking the truth: O listener! Do not become a criminal like me (says the corrupt man), for we feel the worst afflictions (Sakhawi 21-22).

The sufis are also known in Arabic as *zahid* (ascetic), *faqir* (poor) or *rabbani* (divine). They studied the internal aspects of the Prophet's life and practiced exceptional piety. The following huffaz were at the same time highly prominent sufis: Abu Hazim Salamah (V: 120), Habib bin al-Shahid (VI: 161), Jarir bin Abdilhamid (VII: 258), Abdullah bin al-Mubarak bin Wadih (VII: 261), al-Ma'afi bin 'Imran (VII: 268), Muhammad bin Fudayl bin Ghazwan (VII: 295), Ibn Abi 'Asim (XI: 664), Ibn Abi Hatim (XII: 813), Ibn al-A'rabi (XII: 831), Abu Ya'la (XII: 838), Abu Umar al-Zahid (XII: 845), Umar bin Sahl bin Ismail (XII: 849), Muhammad bin Dawud bin Sulayman (XIII: 869), Ibn Shahin (XIII: 924), Khalaf bin al-Qasim bin Sahl (XIV: 956), Abu Abdirrahman al-Sulami (XIV: 964), al-Naqqash (XIV: 972), al-Malini (XIV: 979), Atiyya bin Sa'id (XIV: 990), Abu Nu'aym (XIV: 994), Abu Dharr al-Harawi (XIV: 998), al-Falaki (XV: 1010), al-Kattani (XV: 1025), Shaykh al-Islam al-Harawi (XV: 1029),

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Abu al-Qasim al-Shirazi (XVI: 1040), Ibn al-Qaysarani (XVI: 1054), al-Shirazi (XVIII:1104), al-Abyurdi (XXI: 1165).

Inter-Domain Brokerage and Prominence

The above analysis documented that there is not a single hafiz who was specialized in only one field. The best evidence for this comes from the fact that a hafiz was at the same a jurisconsult as well, of course with varying degrees of reputation. But why? Why do not intellectuals remain content after prevailing over one intellectual domain? Why do they have the propensity to continuously expand their interests? Why do not they feel happy after gaining prominence in one field, but readily accept the risk and fatigue of putting themselves under the burden of yet another discipline?

Table 7.1: Multiple Involvement and Inter-disciplinary Brokerage

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Table 7.1 shows that intellectuals with multiple involvement were not so many even among the most prominent scholars of hadith. Furthermore, the disciplinary borders are fluid and far from fixed. For instance, in the early history of Islam, traditional sciences were not completely differentiated from each other and the titles that came to existence later do not exactly apply, except by projecting them to the past, to the scholars who lived prior to the crystallization of the disciplinary borders. The total number of multiple involvement is 178, excluding the number of hafiz-jurists because, as I argued earlier, the huffaz are all jurists at the same time. The number of polyhistors among the

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huffaz constitutes only 14.53 % of all huffaz. The following table and graph illustrate distribution of this number into four disciplines that we have already discussed.

Table 7.2: Polyhistors

Graph 7.1: Polyhistors

Table 7.2 and Graph 7.1 demonstrate that among the total 178 with multiple involvement, 70 connections were to the network of the reciters of the Koran (qurra) (39.3 %), 64 connections were to the network of historians (35.96 %), 14 connections were to the network of philosophers (7.87 %), and 16 connections were to the network of sufis (16.35 %)[16].

This phenomenon can be briefly called an inter-domain brokerage because each discipline/field constitutes a relatively autonomous sociocultural domain with a distinctive mode of discourse or genre. I suggest that the propensity among highly prominent intellectuals for multiple involvement and assuming the role of inter-domain brokerage can be attributed to the effect of levels of reported speech. I will briefly outline my argument in the following paragraphs.

Dependence on indigenous authorities in a discourse network other than one's own is eliminated *via* multiple involvement. Social actors try to reduce the constraints on

[16] These figures might not exactly reflect the actual map of interdisciplinary connections because they are derived from sources that were composed for other purposes. Neither Dhahabi, nor Suyuti and Collins intended to record inter-disciplinary network connections. Yet, their works contain information about the multiple involvement of scholars.

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their social activity and increase their independence as much as they can. This is true for corporate and individual actors be it in markets or in intellectual fields. A scholar has to cite an authority from another field if he is not an expert in that field as well. Yet, if he specializes in that field also, he can speak as an authority in it without depending on, and reporting from, another authority. For instance, a sociologist who wants to speak about economic institutions has to cite authorities in the field of economics unless he also becomes an authority in economics as well. By involving himself in economics also, our sociologist eliminates the existing constraints on him as a sociologist alone and can now speak about economics without having to cite or refer to an economist.

Furthermore, a scholar with multiple involvement serves as a discourse broker between the domains he is involved in, which increases his prominence in his native field. Our sociologist-economist might gain prominence among his sociologist colleagues because he will have the advantages others do not. He can be instrumental in the academic exchange and cross-fertilization of ideas and methods between two disciplines. This is a tradition some sociologists actually follow, though with varying degrees of success, from the time of Marx and Weber to Parsons and Coleman as well as many others.

In addition, the influence of a scholar with multiple involvement is no longer limited only to his native field. Each additional field a prominent scholar gets involved in means increased influence on his part. He will let himself to be influenced by the perspectives of these new fields he is involved in, yet, at the same time, his influence will also expand to the new fields. For instance, the influence of Marx and Weber is felt not

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only in Sociology but also outside Sociology as well because of their almost limitless interest that defied all existing disciplinary borders.

A discourse mediator who is involved in multiple social and cultural domains carries the burden of mastering all genres that characterize the fields he has a foot in. Furthermore, he has to be careful of the invisible borders of discourse networks and be able to promptly switch between them. Going back to the example of our sociologist-economist, he cannot demand a sociology journal to publish a paper he wrote following the genre of economics, just because he is a prominent sociologist. Similarly, the opposite is also true. If he sends a sociology paper he wrote to an economic journal simply because he is also an economist, his paper will certainly be rejected regardless of how excellent it is. A broker between different discourse networks can be successful only when he is fully aware of these constraints.

Teachers with multiple interests might draw more students, compared to their colleagues who are prominent only in one field, because they will have students attracted to them from all disciplines they are involved in. Students not only from the field of sociology but from economics will seek after our sociologist-economist also. The more students seek after a teacher, the more prominent he is.

Ibn Khaldun: Why are the Majority of Muslim Intellectuals non-Arabs?

Ibn Khaldun observed in the 15th century that most of the Muslim intellectuals were non-Arabs although Islam first emerged in Arabia, Prophet Muhammad was an Arab, and the language of the Koran and hadith is Arabic.

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> It is a remarkable fact that, with few exceptions, most Muslim scholars both in the religious and intellectual sciences have been non-Arabs. When a scholar is of Arab origin, he in non-Arab in language and upbringing and has non-Arab teachers. This is so in spite of the fact that Islam is an Arabic religion, and its founder was an Arab (Ibn Khaldun III: 311).

In Chapter 2 above, I also showed that the hadith transmission network had several shifting centers. Madina served as a center only in the early period and later it lost this high status to the cities that emerged on the edges of Islamic world (Bulliet 1994). As the intellectual center shifted away from the religious center, that is from central Arabia where Mecca and Medina are located, to the periphery, the number of prominent Arab scholars decreased while the number of prominent non-Arab scholars increased. The network of intellectuals had multiple shifting centers over centuries from Spain to India[17].

Ibn Khaldun attributed this paradoxical development to the dialectic between sedentary and nomadic culture. Civilization rests with the sedentary culture but nomadic culture is far remote from civilization. "Scholarship was restricted to cities with an abundant sedentary culture" (Ibn Khaldun III: 315). He also writes,

> We have mentioned that the crafts are cultivated by sedentary people and that of all peoples, Arab (Bedouins) are least familiar with the crafts. Thus, the sciences came to belong to sedentary culture, and the Arabs were not familiar with them or with their cultivation. Now, the (only) sedentary people at that time were non-Arabs and, what amounts to the same thing, the clients and sedentary people who followed the non-Arabs at that time in all matters of sedentary culture, including the crafts and professions. They were most versed in those things, because sedentary culture had been firmly rooted among them from the time of the Persian Empire (Ibn Khaldun III: 312).

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[17] Bulliet suggests an alternative to the current perspectives on the history of Islam that cannot count for this diversity. He writes, "For its first five centuries, despite the nominal inclusion of all Muslims in a single conceptual community called the umma, Islam was divided into many communities, some doctrinal, some ritual, some geographic. The view from the center, in seeking to explain the apparent homogeneity of Islamic society in later centuries, itself something of an illusion, projects back into the days of the caliphate a false aura of uniformity, leaving untold the complex and strife-ridden tale of how Islamic society actually developed (Bulliet 1994: 8).

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Arabs, who originally provided the raw material and initiated the process of creating new sciences had to re-learn them from the non-Arabs.

> The Arabs who came into contact with that flourishing sedentary culture and exchanged their Bedouin attitude for it were diverted from occupying themselves with scholarship and study by their leading position in the Abbasid dynasty and the tasks that confronted them in government. They were the men of dynasty, at once its protectors and the executors of its policy (Ibn Khaldun III: 313-314).

Ibn Khaldun shows how sweeping the contribution of non-Arab intellectuals were to Islamic sciences. Even the linguistic studies about Arabic were born in the hands of non-Arab scholars. Arabs thus owe the grammar of their language to non-Arabs, an interesting phenomenon I shall shortly deal in some more detail. Not only the linguistic and literary studies but the study of hadith, the Koran, and Islamic Jurisprudence and Philosophy also emerged through the contributions of non-Arab scholars who learned Arabic as a second language.

> Thus the founders of grammer were Sibawayh and, after him al-Farisi and az-Zajjaj. All of them were non-Arab (Persian) descent. They were brought up in the Arabic language and acquired the knowledge of it through their upbringing and through contact with Arabs. They invented the rules of (grammar) and made (grammar) into a discipline (in its own right) for later (generations to use). Most of the *hadith* scholars who preserved the traditions for the Muslims also were non-Arabs (Persians), or Persian in language and upbringing, because the discipline was widely cultivated in Iraq and the regions beyond. (Furthermore,) all the scholars who worked in the science of the principles of jurisprudence were non-Arabs (Persians), as is well known. The same applies to speculative theologians and to most Qur'an commentators. Only non-Arabs (Persians) engaged in the task of preserving knowledge and writing systematic scholarly works. Thus, the truth of the following statement by the Prophet becomes apparent: "If scholarship hung suspended at the highest parts of heaven, the Persians would (reach it and) take it (Ibn Khaldun III: 313).

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Although Ibn Khaldun attributes this striking phenomenon to the dialectic between sedentary and nomadic cultures, I believe a related phenomenon must also be taken into consideration. Namely, caravan trade must have also played a crucial role in the development and dispersion of traditional Islamic sciences. This is an assumption that can be rigorously tested in future work. The cities that are located on trade roots such as Cairo, Baghdad, Nishapur, Bukhara were at the same time cultural centers of the time that attracted students worldwide. Trade contributed to the wealth of these cities. Most importantly, trade caravans also served as channels of communication between various centers of learning, which created a huge pool of culture where ideas could circulate and interact with each other.

Cosmopolite Intellectuals and the Need for a *Lingua franca*

The question Ibn Khaldun raised about the ethnic composition of the huffaz, leads us yet to another striking discursive aspect of the network of the huffaz. If the majority of intellectuals had been non-Arabs, in particular Persians, then, why did they preserve Arabic as their *lingua franca*? I suggest that this is related to the need of a cosmopolitan group for a *lingua franca* that would help them construct and maintain social relations for an extended period of time. In this regard, Arabic for Muslim intellectuals is comparable to Latin for Christian intellectuals of the middle ages and English for modern intellectuals of our times.

This phenomenon is important if considered in connection with Collins' concept of 'interaction rituals' (IR) in the intellectual community. Intellectual rituals in a cosmopolite community are facilitated by the existence of a *lingua franca*. Otherwise, it

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would not be easy for an international community to maintain its existence and coherence for an extended period of time. This provides an additional reason why a single language prevailed in the network of the huffaz despite their different mother tongues. Arabic was in a privileged position to reign as the *lingua franca* compared to other major languages of Muslim peoples such as Persian, Berber and Turkish.

Furthermore, non-Arab intellectuals paid a greater cost for maintaining Arabic as a *lingua franca* (Bohas, Gullaume and Kouloghli 1990). Ibn Khaldun observes that it hindered the speed of their intellectual progress in the beginning of their education because they had to spend an extended period of time to master Arabic. A section in *The Muqaddimah* carries the following title: "A person whose first language was not Arabic finds it harder than the (native) speaker of Arabic to acquire sciences" (Ibn Khaldun III: 315). Even though it was taxing on the non-Arab intellectuals, they maintained Arabic as the *lingua franca* regardless of the small portion of Arabs in their ranks because it provided the common ground and an expedient means of communication.

From Huffaz to New York Intellectuals

Modern intellectual communities, with their unconfined borders, also face the same problems the huffaz faced in the construction and maintenance of a cosmopolite intellectual community. Today, English plays a crucial role as a means of communication throughout the world. The intellectuals from other nations have to spend time to learn and master it if they want to become a part of the international intellectual community.

For instance, the cosmopolite community of New York intellectuals communicates in English, which is their *lingua franca*, regardless of their native

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language. The best example is the way German speaking Jewish intellectuals who fled from Nazi Germany quickly adopted English to participate in the New York community. Likewise, a great majority of the books published by New York publishers are not by native speakers of English. Similarly, from Einstein to Said and Eco, countless foreign professors visit and teach at the academic institutions of New York City, primarily at Columbia University. Furthermore, a considerable number of foreign students have been trained at the academic institutions of New York also. The libraries are full of books in foreign languages. What is more, even the newspaper kiosks on the street corners display newspapers and periodicals in numerous foreign languages. Based on these observations, one can say that without English, it would be difficult for New York intellectuals to maintain communication and cohesive social relations among themselves.

Besides the need for a *lingua franca*, it is possible to draw other parallels between the community of modern intellectuals and the huffaz. In the modern world also intellectuals are involved in multiple fields. Take New York intellectuals for an example. They are part of universities and are involved in academia. They also contribute to audiovisual and written media as experts or as columnists. One can be a historian and a novelist as well. They might also be a part of artistic circles in the town for instance as musicians and actors. Some might also choose a political career. Some might be involved in trade and business as well.

Intellectuals, be they modern or medieval or ancient, lead multiple lives. First, there is the world of their native language and the world of the *lingua franca* they have adopted. Then, there is the world of their home discourse network and other vocations to which they have committed themselves. They stand where all these different spheres

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overlap and play the role of broker between them. They are the ones who enjoy the privilege of speaking in each domain without having to report from others. On the contrary, they are the ones from whom others report.

Conclusion

Collins argues that the structure of the intellectual community remained unchanged for the last two thousand years. A comparison of his findings and observations with those of Ibn Khaldun supports Collins' claim. They both (1) study intellectual networks in their temporal context, (2) pay extensive attention to language or the discursive aspect of the network of intellectuals, (3) highlight the role of a tiny group as the leading element.

Yet, in the sociology of intellectuals, there are differences between the views and contributions of Ibn Khaldun and Collins. Ibn Khaldun shows the organic connections on the conceptual level between different intellectual fields. In contrast, Collins focuses only on one intellectual community, namely philosophers. Besides, Collins' interest is global whereas the interest of Ibn Khaldun is limited to Islamic civilization. More than one third of *The Muqaddimah* is dedicated to, what we call today, the sociology of science and intellectuals[18], which also encompassed a large number of nationalities and cultures.

In this chapter, I attempted to show the place of prominent scholars of hadith in Islamic culture and society as intellectuals of their time. The above analysis has demonstrated the parallels between the structures of the networks of

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philosophers analyzed by Collins and the network of the huffaz analyzed in this study. I also showed the variable ways hadith was put in use by the huffaz and highlighted some of the persistent discursive patterns in their networks.

Extensive inter-generational contact and multiple involvement in several discourse networks characterize the activity of prominent intellectuals in ancient and modern times, be they religious or secular. The huffaz were not only prominent in the field of hadith but in many other intellectual fields such as law, literature and philosophy also. They interpreted hadith through the glasses of these disciplines and contributed to the genre of their disciplines rather than mechanically transmitting hadith to the succeeding generations. Each generation of huffaz inherited the knowledge of the past and built upon it by further systematizing it and, most importantly, by discovering new usage of it.

The huffaz maintained the Arabic language for centuries as their *lingua franca* even though at times the proportion of Arab scholars in the network was extremely tiny. This is because Arabic served best the need for a *lingua franca* to facilitate communication among members with numerous mother tongues. Learning the *lingua franca* of an international intellectual community is the price an aspiring intellectual has to pay without any negotiation.

It is possible to draw parallels between New York intellectuals and the huffaz. Intellectuals in both groups are involved in multiple discourse networks, cosmopolite or international in composition with a *lingua franca* facilitating their communication.

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[18] See Chapter VI in *The Muqaddimah* (vol. II: 409-463, vol. III: 1-481).

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Table 7.1: Multiple Involvement and Inter-disciplinary Brokerage*

Layer	Hafiz*	Hafiz-Jurist	Hafiz-Reciter	Hafiz-Historian	Hafiz-Philosopher**	Hafiz-Sufi
1	1	1	1	1	1	1
2	23	23	5			
3	42	42	2			
4	30	30	3		1	
5	58	58	1			1
6	78	78	5	1	5	1
7	81	81	3	2	1	4
8	106	106	10	5		
9	130	130	3	5	1	
10	106	106		1	2	
11	117	117	5		2	1
12	77	77		1		5
13	79	79	9	8		2
14	74	74	4	9		7
15	31	31	1	5		3
16	46	46	2	5		2
17	18	18	1	7		
18	25	25	5	3		1
19	26	26	2	4		
20	12	12	2	2		
21	10	10	2	3		1
22	23	23	3	1		
23	11	11				
24	9	9				
25	12	12	1			
26	1	1		1	1	1
Total	1226	1226	70	64	14	30
%	14.52		5.71	5.22	1.14	2.45

* In the earlier layers, the titles are not applicable except as a projection of a more recent concept to an earlier period. The titles of disciplines and scholars came into existence later as the scholarly networks and disciplines differentiated gradually after the demise of the Prophet.

** Although the data is from Dhahabi's and Suyuti's *Biographical Dictionary of Huffaz (Prominent Hadith Scholars)*, names of the Philosopher-huffaz are derived from Collins (Forthcoming).

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Table 7.2: Polyhistors*

	Hafiz-Reciter	Hafiz-Historian	Hafiz-Philosopher	Hafiz-Sufi	Sum
Total	70	64	14	30	178
Percentage	39.33	35.96	7.87	16.85	100

* This table excludes the jurist-huffaz due to the assumed complete overlap since a hafiz is required to be a jurist as well.

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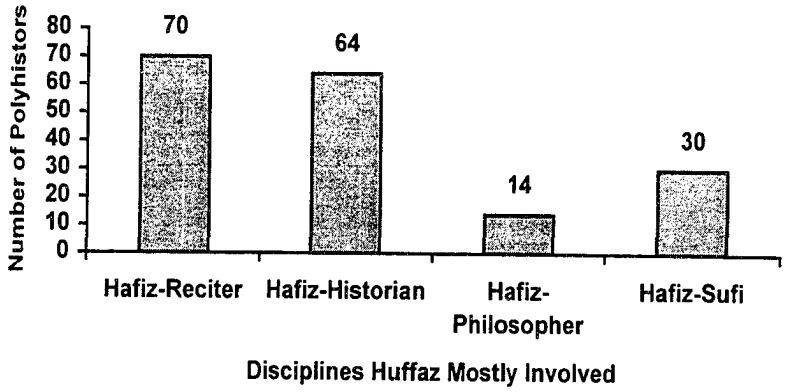

Figure 7.1: Polyhistors*

* Since a hafiz is required to be a jurist as well, this graph excludes the jurist-huffaz due the assumed complete overlap.

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Chapter 8

Micro level analysis and Case Studies

SOCIAL AND LITERARY DYNAMICS OF AUTHORITY FORMATION:

MICRO LEVEL LRS EFFECT

This chapter is an attempt to answer why some scholars became more prominent than others in the hadith transmission network, and how they transferred their authority to their students. First, a subset of the data is created by selecting three scholars with the highest number of connections from each layer whose immediate and remote social relations I analyze. Second, it looks at the role of the network distance between origin and target of relations in the network of prominent scholars to determine whether there is inter-generational brokerage. It ends with a discussion about how discursive and social patterns intertwine to jointly produce authority.

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In this chapter, I expand the measures I used in the previous chapter to the indirect or extended network connections. This chapter tests through micro level analysis and case studies the argument of this study regarding the role of reported speech and inter-layer brokerage as they jointly bear on authority formation. I show that diachronic out-layer relations are responsible for authority formation rather than synchronic in-layer relations. The micro level analysis suggests that a hafiz is always a student of a hafiz from previous generations. In other words, the way to become a hafiz is to be a student of one, though not from one's own generation. Both the effect of levels of reported speech and inter-layer brokerage are observed not only on the immediate connections but also on the expanded network connections. The role of extended network connections is demonstrated through an analysis of the geodesic distance between the social actor under investigation and the center of the network, the Prophet. I demonstrate that in a social network 'global proximity' to the social actors from remote layers is produced by 'local distance' to the social actors in the vicinity.

In the preceding chapter, I demonstrated how the intertwining discursive and social relations influence the process of authority formation on the macro level between corporate/aggregate social actors. In this chapter, I take this analysis further by exploring the same problem on the micro level through an analysis of relations between individual social actors. My purpose is to explain why certain scholars in the hadith transmission network gain more authority, or social prominence, relative to others. Furthermore, how do they transfer this authority to their students? The answer, I suggest, lies in the configuration of their social networks. The analysis below demonstrates that a particular configuration characterizes the social networks of highly prominent hadith scholars over

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centuries. Yet, the network patterns on which social authority is grounded are, I also suggest, implicitly shaped by metalinguistic patterns, namely patterns in reported speech. While social actors attempt persistently to reduce the levels of reported speech, and thus diminish discourse mediators, their network gains, though out of sight, a particular configuration which eventually determines the prominence of social actors.

Authority formation in a discourse community such as the hadith transmission network is a complex process, yet with several underlying social and linguistic patterns. This section will de-couple these intertwined patterns and effects for the purpose of analysis and measurement, only to re-couple them again at the final stage. From this perspective, the effects of generational affiliation and inter-layer exchange are de-coupled from the effects of disciplinary affiliation and interdisciplinary exchange. Similarly, the effects of sociolinguistic dynamics are de-coupled from the effects of social network dynamics. The seemingly independent effects on the literary and the social levels prove to be intricately linked to each other on a higher level, forming a meta-structure.

Authority formation on the micro level is currently analyzed on varying network scopes depending on the span/range of the social ties to be included in the analysis. For instance, some network analysts make a distinction between "local prominence" and "global prominence[1]." The former is taken to be about authority formation within the context of limited span/range of relations. The latter, global prominence, on the other hand, is taken to be about authority formation within the entire network.

[1] Freeman proposed these concepts and operationalized them in the context of crossectional networks. These measures originate from different conceptualizations of prominence and can be used to address different aspects of network structure. Since they were originally developed within the context of

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Applied to a time-stratified network structure, local prominence is used to refer to the centrality of social actors in comparison to their age group from the same layer. Global centrality, on the other hand, is used to indicate centrality of social actors in comparison to their predecessors from earlier generations and successors from subsequent generations. For instance, Bukhari's place within his own layer, which is layer 9, is to be called his local prominence, while his place within the entire network, 26 generations, is to be coined as his global prominence. Such a distinction is needed because, a social actor might be very prominent within his local domain but this does not insure his prominence within the global structure.

The analysis below, however, does not commit itself to this distinction strictly, but rather it tries to exploit it[2]. Insights derived from both perspectives are employed, depending on the question under investigation, to develop new perspectives to the authority formation in time stratified, or cross-temporal networks. Analysis of the authority formation in time stratified networks can benefit and, in turn, contribute to the study of crossectional networks.

I undertake the analysis of local prominence within a time-stratified network and leave the analysis of global prominence yet to another study. My purpose here is to show how local prominence is influenced by cross-temporal relations within the immediate

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crossectional networks, they are not completely suitable for networks through time. Therefore, they are defined within the context of networks through time.

[2] According to Freeman, a social actor is globally prominent if he is relatively more closely linked to all others in the network. "A point is globally central if it lies at short distances from many other points. Such a point is 'close' to many other points in the graph" (Scott, 89). This perspective is unsuitable to time-stratified networks because it is designed only for crossectional networks. If we apply this perspective to a time-stratified network, the generations who are located in the middle of the network due to their historical location will be given an undeserved prominence. This cannot be justified because the earlier and later layers will be treated always in a disadvantaged way.

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vicinity and remote parts of the network. To this end, I propose some ways to adjust the current synchronic methods of prominence analysis. I argue that closeness to the center of the network, which might be located somewhere in remote history, and the ties to prominent predecessors play a crucial role on the degree of social prominence a scholar gains.

The present gap between cross-temporal and cross-sectional approaches to the study of social networks poses problems I have to tackle. Despite the variations observed in the current literature, scholarly discourse is severely lacking in scope and breath on the issue of authority formation in cross-temporal or time-stratified networks (Wasserman, Scot, Bonacich). Most of the present network analysis measures are insensitive to time and the intergenerational nature of social networks. Consequently, the study of prominence as a social phenomenon embedded in the generational structure of social networks still remains underdeveloped. Recent overtures echoed for the study of networks through time have received little attention due to lack of cross-temporal network data[3]. Yet, compared to the macro level, there is an increasing number of studies on the micro level of cross-temporal network analysis that can be cited here. The work of White, Mullins, Zuckerman, Piaget, and Abbott are on the micro level. This literature contributed to this study not only by shedding light on a network through time but exploring some of the conceptual foundations as well.

[3] The lack of cross-temporal studies can be attributed to the difficulty of collecting data on a social network over an extended period of time which would require several generations of researchers constantly recording the connections. This falls virtually beyond human reach because of the limitations on the longevity of the life of the researcher undertaking such an endeavor. Data gathering for such a network, as we have already seen in the case of hadith transmission network, requires several generations of scholars who would successively supplement and update the network data collected by the scholars from previous

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Besides the underdeveloped state of the methods I have to deal with, I also need to deal with the gap between discursive and social structures. Because of the gap between literary and social structuralism at the conceptual level, the current analysis of social prominence does not take into consideration the role of language use on the formation of social authority. Yet, scholars, as most other social actors, perceive their identity in historical networks in which language--including reported speech and narrative--is the main means of establishing and maintaining social relations. It would be incomplete, therefore, to focus exclusively on either social or linguistic processes when unearthing dynamics of authority formation in the scholarly community. Current prominence measures will thus be reinterpreted and adjusted to reflect these concerns in relation to the networks through time.

The aim here is to figure out who among scholars gain prominence in a discourse community. A scholarly community can be perceived as an intergenerational and interdisciplinary discourse network. Since the focus of this work is on the inter-layer ties, we need to disregard, for analytical purposes, interdisciplinary connections. The underlying theoretical assumption is that the network configuration of scholars can be used as an indicator of their social prominence; particular network configurations both empowers and constrains the scholars who are imbedded in them.

Analysis of prominence is based on the network configuration of social actors. In an egocentric network, the simplest measure of prominence, as mentioned earlier, is the "local prominence" which is predominantly based on the analysis of immediate

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generations. An alternative is to use archival sources (Barkey, Padgett). This constraint can be considered as the main cause behind the focus of social network analysts on crossectional networks.

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connections or the first step ties. Conversely, the "global prominence" is predominantly based on extended connections or on the *n* step ties[4]. The logic behind this analysis is to contrast the total number of actual ties a social actor has with the total number of possible ties a social actor could have had.

It would be misleading, however, to treat all social connections equally with respect to their effects on the social prominence of the parties involved. Some connections are more empowering than others for various reasons: they might provide access to more resources (the case of connection to someone who has a high number of connections, or to someone who is prominent in several network domains), or they may facilitate easier access to recourses (the case of connection to someone who provides access to a source through a relatively shorter network path). More concretely, deriving from the hadith transmission network, connection to a teacher from an earlier generation, who specializes in several fields with a large number of teachers and students and a shorter chain of authorities reaching to the Prophet, will have more profound effect on the prominence of a student than one with a connection to a teacher from the same generation who does not have recognition outside his own field with a few teachers and students and a longer chain of authorities reaching to the Prophet.

The importance of a tie, in brief, depends on the role it plays between temporal network domains, that is layers. Therefore, I tried to find ways in the following analysis to reflect these effects on the social value of network connections. From this perspective, the role of inter-layer brokerage (ILB) on prominence is explored. The effect of inter-

[4] In the text below, "ego" is commonly used to denote the scholar under concern while "alter" is used to denote the person with whom "ego" has a connection. In the case of hadith scholars an "alter" is either a

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layer brokerage will be further broken down into two components: generation distance between ego and alter (GEA), geodesic distance or the shortest path between alter and the center/Prophet (GTP). Following the strategy I used in the preceding chapter, here also, I linked the social and discursive pattern on the level of metalanguage *via* reflexive or reported speech.

Graph 8.1: Metalanguage, Network configuration and Authority Formation

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A Revisit to the Micro Data: A Constellation of Starts

The unit of analysis here is the scholars and their connections. My data consist of 1226 scholars with total 13712 connections. Although it was possible to use these data on the macro level as aggregate values, on the micro level, it is beyond the limits of the present study. Therefore, I need to create a subset of my data that are feasible to handle within the given limits of this study. This subset will consist of three scholars from each layer with the highest number of connections. This selection serves our purpose better than a random selection because the interest of this study is to unearth the patterns in the network configuration of the most prominent scholars.

Without such a subset, the analysis of the network on the micro level would require a tremendous amount of computational work, which might be a future project[5]. The number of generations used in the analysis is again 26 including the generation of the

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student or a teacher of ego.

[5] The sociomatrix needs to be broken to 26 network zones with overlapping membership, each to analyzed separately. The current social network analysis software are not designed for such a task either.

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Prophet and that of Suyuti, expanding from the year 610 (the first declaration of his mission by the Prophet Muhammad in Mecca) to 1505 (the death of al-Suyuti in Egypt).

Table 8.1: The top 3 scholars from the 26 layers, 610-1505

Table 8.1 provides a list of 76 scholars whose connections will be analyzed here. These scholars have the highest number of connections in their respective layers. There are three scholars from each layer except layer 1 and layer 26, each of which consists of only one figure, namely the Prophet and Suyuti. Each scholar is assigned a case ID in addition to his or her number in HADITHNET. The number of scholars in the biographical dictionary of Dhahabi (until layer 21) and Suyuti (from layer 22 onward) are also provided as a cross-reference[6]. The discrepancy in the numbering of layers between classical sources and the one used by HADITHNET emerges from the fact that the former do not include the generation of the Prophet as a layer, while the numbering in the latter encompasses the generation of the Prophet.

Table 8.2: Total number of teacher and student connections

The above table, Table 8.2, provides a list of the total number of connections for the scholars to be included in the analysis as well as their rank in their layer, based on the

[6] Since there are different editions of the aforementioned classical works with different systems of enumeration, I always rely on the numbering HADITHNET uses. Furthermore, there is an inconsistency in the most recent edition of al-Suyuti's biographical dictionary (1983) between the numbers assigned to the scholars in the table of contents and in the text.

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total number of connections. Table 8.2 further breaks down the total number of connections into student and teacher connections. Ranking of scholars in their layer based on the total number of teacher connections is also provided. The three rankings for particular scholars do no always match each other. For instance, Nafi' (Case ID is IV:8) from layer 4 is the first in his layer (n= 23); he is also the first as a student (n=14), yet as a teacher, he is the third (n= 9). Similarly, Ibn Mandah (Case ID is XIV:40) from layer 14, was third with respect to total number of connections (n= 29), and as a teacher (n=18), yet he was first as a student (n= 11).

Table 8.3: List of all connections in the subset

Now, let us have a closer look at the subset to be analyzed in this chapter. Table 8.3 shows that the total number of connections in the subset among these 76 scholars from 26 layers is 174. Note that the connections to the scholars outside the subset are not included here. Therefore, the number of connections in Table 8.3 does not reflect all the connections a scholar has, but it reflects connections to the highly prominent scholars within the subset. On average, each scholar has 6.69 connections. Yet, this number should be multiplied by itself, if we take into consideration that each student connection listed in the table is also a teacher connection, looked at from the perspective of students. (Table 8.6 and Table 8.7 below have a detailed list of teacher and student connections as well as the distances they help to bridge.)

By reviewing Table 8.3, it is possible to identify the time-stratified nature of the network because the network zone of each figure is demarcated by time. Table 8.3

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illustrates how time plays an omnipotent or sweeping, yet invisible, role in determining who can have a tie with whom. Stratification based on time is so solid that it is impossible for social actors to evade it[7]. No one has the might to encroach the borders drawn by time; an invisible, yet most solid, wall separates layers in a network through time and completely blocks the possibility for some to have connections with each other.

Therefore, in the analysis below, I have to take into account that in a time stratified network, social actors cannot establish ties to certain strata in the network due to time constraints. Conversely, in a cross-sectional social network, social actors are not constrained by time in establishing connections with others in the network. For instance, a scholar from layer 7 cannot possibly establish any connection with a scholar from layer 2 simply because the time periods in which they lived do not converge. Scholars from layer 2 die long before the scholars from layer 7 are born. Below, this phenomenon is conveniently referred to as "maximum-reach" of social actors in a time stratified network, which is a measure of the extent of the domains to which a social actor can establish connections.

Simple Local Prominence

Comparative analysis of the total number of direct ties a social actor has in a social network is the simplest method in determining relative social prominence, which gives us the measure of what is termed "local prominence." This approach is useful but far too simplistic since it can mislead because it neglects the fact that the ties are influenced by social and cultural processes, simultaneously operating in the network.

[7] For a comparison, see Burt (1983).

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Before exploring what these processes are, it, nevertheless, is interesting to explore local prominence in the hadith transmission network.

Local prominence in time-stratified networks, which consist of intra and inter-layer connections, has different dynamics from those of crosssectional networks where generational phenomenon is not even a concern. Therefore, following the logic used in the previous chapter on the macro level analysis, on micro level analysis too, MR (maximum number of possible connections for a social actor) will replace N (total number of connections in the network) in determining the maximum possible number of social actors with whom one can possibly establish connections. In reality, however, this almost never occurs[8]. Alternatively, from a more down to earth perspective, the number of connections for the locally most prominent scholar can be used as an indicator for the maximum number of connections scholars from this layer could have established.

The latter approach has advantages over the former because, practically speaking, it is impossible for a scholar from a given layer to establish connections with all the scholars from 9 neighboring layers. Even if they can, hypothetically speaking, this would still be captured by the second approach. The maximum reach of the first and the last layers, on the other hand, cannot expand to 9 layers because the network is truncated in the beginning and at the end. For instance, the first layer cannot go beyond the Prophet's generation as it is the origin and formation of the network. Therefore their upward maximum reach is limited to 1.

[8] In the hadith transmission network only the Prophet exhausted all the network possibilities because he was, by definition, connected to everyone in his reach. He had personal connections to all of layer 1, his Companions, who in turn were not as thickly connected to each other.

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Similar nuances can be observed for layers 2 and 3 because their upward expansion is also limited. Upward connections of layer 2 can extend only one step, to the first layer. Analogously, the upward connections of layer 3 also can extend only one step, to the second layer. Likewise for the last layers, the downward maximum reach is limited solely because of the lack of the data on their connections with future generations. Utilizing the number of connections made by the most prominent scholar, in the layer of the scholar under investigation, is a method to overcome this problem and obtain a relative measure of social prominence.

$$LP = \frac{t}{T} \qquad \text{eq. (7.1)}$$

Where LP stand for local prominence, t stands for actual ties of a social actor, T stands for the maximum possible ties of a social actor or the number of connections for the most prominent scholar.

The local prominence (LP) measure is derived from the total number of connections which consists of student and teacher relations a scholar had. Therefore, it is possible to dissect the total number of connections into its components, which would then enable us to explore the interplay between the total number of student and teacher connections. Teacher prominence is derived from the total number of student connections a scholar received divided by the maximum possible number of student ties he could have received. Student prominence, on the other hand, is based on the total number of teacher connections a scholar established divided by the maximum number of teacher connections he could have established.

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$$LPs = \frac{tt}{Tt} \qquad \text{eq. (7.2)}$$

Where LP_S stands for local prominence of a student, t_t stands for total number of actual teacher ties, T_t stans for the total number of possible teacher ties or number of ties of the most prominent

$$LPt = \frac{ts}{Ts} \qquad \text{eq. (7.3)}$$

Where LP_t is local prominence of a teacher, t_S is total number of actual student ties, s_t is the total number of possible student ties or the number of student ties for the most prominent teacher

The results are presented in Table 8.4. Table 8.4 shows the scores for general local prominence derived from total number of connections, teacher prominence derived from total number of student connections, as well as student prominence derived from total number of teacher connections. The three measures do not always match for particular cases. For instance, the general prominence score of Nafi (Case ID IV:8) is 1.00, but his student prominence score is 0.42, while his prominence score as a teacher is again 1.00. The score of Ibn Mandah (Case ID XIV:40) on general prominence is 0.69, student prominence score is 0.53, and teacher prominence score is 1.00.

Table 8.4: Scores for Local Prominence

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"Student prominence" and "teacher prominence" and the relationship between them can be used to explore more deeply some of the processes in the network. How are the total number of connections distributed between student and teacher connections over centuries? What is the impact of student connections on teacher connections and vice versa, what is the role of teacher connections on student connections? In other words, do prominent students always become prominent teachers?

The following sociomatrix, Table 8.5, helps us to intuitively tackle these questions. The sociomatrix provides a global picture of the network for 26 layers. The connections on the columns are teacher connections while the connection reported on the rows are student connections. The connections around the diagonal, which are highlighted by gray color, represent the in-layer connections.

Table 8.5: Sociomatrix for the network of the top 3 scholars from the 26 layers, 610-1505

There are a number of network processes that can be captured by reviewing this socimatrix. We can see that there are only a few in-layer connections, while most of the connections are concentrated outside the layer. We can also see that where teacher connections are concentrated. By reading the columns that report the teacher connections, it is possible to tell that the teacher connections concentrate on the ties to earlier layers. Similary, the sociomatrix shows that the student connections are concentrated on the ties to earlier layers; by reading the rows that report the student connections, it is possible to observe that most of the teacher connections to the earlier layers.

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The sociomatrix drives our attention to the fluctuations overtime in the network patterns as well. For instance, there are no in-layer connections in the layers 1, 2, 3, 8, 11, 12, 13, 19, 20 and 23 to 25. In contrast, there are in-layer connections in other layers though in varying density. The following scholars have in-layer connections: 3, 188, 250, 441 (2 in-layer ties), 438, 580, 994 (2 in-layer ties), 1028, 1032, 1054, 1042, 1083, 1113, 1116, and 1181. Similarly, in the majority of the cases, scholars do not have teachers from later layers. Yet, it is possible to observe that the following scholars have teacher connections to one step earlier layer: 150, 188, 261, 341 (3 ties), 579, 514, 926, 994, 1016, 1054, 1138 (3 ties, one to Down2), 1150 (3 ties), and 1178. (For the names of these scholars, please consult Table 8.1).

The sociomatrix also impressionistically shows that what counts in the authority formation is not only the prominence of teacher or student, but their distance to the person under investigation as well. (In the graph, in-layer connections are highlighted with gray coloring for easier examination.) In-layer or synchronic connections remain minimum over centuries among highly prominent authorities compared to out-layer or diachronic connections. Therefore, we need to deepen our investigation beyond simple local prominence analysis.

Adjusted Local Prominence: Inter-layer Brokerage

Local prominence, as illustrated above, is derived simply from the number of connections. However, this approach could be quite misleading because, as we have observed, the concomitant social and cultural processes that must be reflected on the model influences social ties. In other words, what matters is not only the existence of a

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tie but the network distance between those who are involved in a relationship as well. Consequently, alternative measures are proposed below to demonstrate the role of these processes on the network ties. The outcome is the adjusted measures of social prominence based on the effects under investigation.

Networks through time reflect relations between and within generations and hide the patterns of inter-layer social relations. At first sight, members of each generation might be expected to be thickly connected to each other simply because they are peers and thus easily accessible to each other. Yet empirically, as the above tables illustrated, the opposite is true; prominent social actors from a layer are closer to prominent actors from other layers than their own. Peers from a layer are almost never connected to one another[9].

The apparent paradox of disconnection among peers is best illustrated by the enduring patterns in the inter-layer relations in the hadith transmission network. The portion of in-layer connections in the composition of the total number of social connections remained the lowest, over a millennium, *vis a vis* the portion of connections with earlier and successive generations. The total number of in-layer connections never went beyond a very minute portion. In the subset, there are only 18 in-layer connections out of 174 connections[10]. This example is sufficient to sustain the argument that the

[9] Even more strikingly, their connections are that of mutual competition with each other. Thus what seemingly appears to be a network wholly unconnected is actually intricately connected *via* competition, because, as Simmel has observed, competition can be taken as one of the strongest social ties (Simmel 1955).

[10] This number is not representative of the portion of in-layer ties within the entire network. In the entire network, there are only 440 in-layer teacher or student connections out of 6856 ties (see above Tables 7.3, 7.4). The total number of in-layer connections in the entire network is 880 out of 13,712 ties.

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analysis of social prominence in networks through time must be adjusted in such a way as to take into account the intergenerational structures.

Prominence from Proximity

Closeness to the center of the network[11] has an important role on determining the prominence of individuals in social networks. Each node in the network is connected to the center through a path, yet the length of the distance of the path between them varies from person to person. Some reach the center directly, some *via* a number of nodes. A path in a social network is defined as an "alternating sequence of nodes and lines beginning and ending with nodes" (Wasserman and Faust 143). In a graph, nodes n_i and n_j are connected through a path with a varying length depending on how many nodes they need to go through in order to reach each other.

The length of the path between social actors and the central figure(s) in the network is an important indicator of prominence. The shorter the path, the greater the prominence. The higher the number of the nodes in the path between two nodes, the more difficult the access between them. Suppose that n_i is the most central social actor in the network, and is connected to n_j and n_k who are also actors within the same network. They might be connected to the central actor by one or more paths among which the most valuable will be the shortest path, the one with the least number of nodes.

Value of a path might be conceived as equal to the cost of access to a given node in a social network. If the path is shorter, then the connection will be easier and less costly. Otherwise, each unit of increase in the length of the path will also increase the

[11] Search for a center in a social network drew the attention of scholars for a long time.

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cost of access. This concern leads to the elimination of mediators because the only way to shorten a chain is through eliminating nodes, that is the number of mediators. Yet, there are constraints to the extent to which that can be done.

Besides, connection to a central figure *via* a relatively shorter path would bring more prestige to a social actor as opposed to others who painstakingly must pursue a longer path to reach to the center. The best illustration of this is the status of the Companions of the Prophet, the center of the hadith network; they are connected to him through the shortest path as there is only one link distance between them and the Prophet. Next to them in social status are the Successors who have only two links between them and the Prophet. This is quite analogous to the status of the Disciples of Jesus in Christianity.

Path Distance

Path distance has its correlates in time and space since each node is anchored in a different time and space. However, actors from a given time period or geographical location do not necessarily reach the Prophet through the same path distance. The path distance between individual scholars from a given generation and the Prophet varies, thereby putting the ones with the shortest paths, or narrative chains, in a more prestigious position. Consequently, the number of the layer--to which a scholar belongs-- does not necessarily reflect accurately the distance between him and the Prophet. Nor does the time period in which a scholar lived reflect how many steps it takes for him to reach the

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Prophet. Geographical and temporal distance are simply not accurate indicators of network distance[12].

The following tables, Table 8.6 and 7.7, report student and teacher connections for all the scholars. The purpose of the tables is to display the distance between the origin and the target of connections. Table 8.6 shows that most of the student connections concentrate on the earlier layers, Sdown1, and Sdown2. Exceptionally, however, there are students from Sdown3, Sin, and Sup1. There are only three Sup2 connections (VII:250, XXI:1166, and XXI:1167). The latter two are from the same layer, layer 21. There are no Sdown4 connections.

Table 8.6: Student Connections and Distance

Table 8.7 demonstrates that teacher connections concentrate on the antecedent layers. Tup2 and Tup1 connections get the highest share. They are followed by Tin, and Tdown1 connections. There are only three Tdown2 connections by scholars: V:150, and IXX:1138 (2 ties) and 4 Tup3 connections by scholars VI:188, VIII:370, XVII:1083, XX:1160. Again in-layer connections compared to out-layer connections are very low.

Table 8.7: Teacher Connections and Distance

An important manifestation of the effect of path distance on academic prestige can be observed on the way students of hadith selected their teachers. All other qualifications

[12] This reminds us of the famous social network analysis on "the six-degrees" or "the small world."

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being equal, historic records indicate that students of hadith always sought after those teachers with the shorter chains of narrative.

Consequently, one cannot become a prominent teacher of hadith unless he can compete with his colleagues with respect to the path distance between him and the Prophet. Longevity over which scholars cannot exert any control makes such a competition possible. To draw more students, they simply wait until they outlive their cohorts so that their chains of narrative become the shortest compared to those of other living authorities.

This preference of choosing the shortest path emanated from a commonly accepted concern on the part of the transmitters to preserve the veracity of the original oral text. The possibility of damage in the original text of the narrative, and thus its authenticity, during the transmission between successive scholars increases with a parallel increase in the chain length. The longer the path, the higher the probability of damage in the original text and consequently the lesser the value of narrative. This issue is directly related to the levels of reported speech to which I will return in the final section of this chapter.

Table 8.8 provides a global picture about how the connections of prominent scholars are distributed to various distances. There are nine categories, Up1 to Up4, In, and Down1 to Down4. This table also illustrates the sharp contrast in the ratio of synchronic and diachronic connections.

Table 8.8: Total Number of Connections to Distances

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Most important of all, longer paths mean increased scholarly dependency, which is reflected by the increased levels of reported speech. If n_i is connected to n_j through n_a, n_b, and n_c, they are dependent on them. Their interest would be best served by eliminating the discourse mediators from the path altogether, if at all possible. If complete elimination is not possible, their interest is served best by reducing the number of discourse mediators in the path. Social actors in a temporal network must know how to menage the temporal constraints they face. These constraints are well exposed by the following table.

Table 8.9: Distance table to an array of ranges

Table 8.9 displays the distribution of connections to 5 ranges. In-layer connections constitute Range1, Up1 and Down1 connections constitute Range2, Up2 and Down2 connections constitute Range2, Up3 and Down3 connections constitute Range4, and Up4 and Down4 connections constitute Range5. By comparing how the ties are distributed to various ranges, it is possible to observe the contrast between, first, in-layer and out-layer connections, and second, between Range2 and Range5 connections. More clearly, the table demonstrates that connections to Range1 are not high as one might normally expect among the members of a prominent group. Likewise, the sudden drop in Range4 and complete wane in Range5 shows the constraints posed by time in shaping the configuration of networks through time. The table illustrates that the scholars try to expand the gap they bridge, yet, they cannot overcome the limitations arising from the network borders drawn by time. Therefore, we can draw the conclusion that with using

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the path distance to the center of the network is desirable because of the advantages it has to offer, and yet, it is possible only to a limited extent due to temporal constraints.

Geodesic Distance between Teachers and the Prophet

It became clear from the above discussion that the work of huffaz was characterized by a search for the shortest path to the Prophet. Scholars were not after narratives only, rather they were after narratives through particular network channels which would gain them distinction in the community. Consequently, the value of a tie to a scholar, for them, depended on how close his chain of authorities was to the Prophet. I will call this geodesic value of tie. An aspiring student of hadith sought after the ties with an extensive geodesic value. Geodesic value summarizes the logic behind the search of students for particular ties.

The shortest path between scholars and the Prophet, which determines what is called here geodesic value, thus plays an important role on their prominence. Attention needs to be paid, nevertheless, to the layer of the scholar as well. If the layer of the scholar is not taken into consideration, then, scholars from different layers with the same path distance will end up being treated the same way. For instance, if n_i from layer 5 is connected the Prophet *via* a path that includes three nodes, it will have the same value as n_j from layer 7 who is also connected to the Prophet through three nodes. Paradoxically, if a scholar belongs to a later layer, yet his chain is relatively shorter, this actually adds value to his chain because he has traversed a longer distance at less cost. Put plainly, reaching the center with less effort from a far distance will increase the importance of a path.

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In this connection, geodesic distance is used here to indicate the shortest path distance a social actor can reach to the most central figure(s) in the network. In our case, it is the shortest chain between a scholar and the Prophet. It should be noted that "geodesic distance" is generally smaller than the layer number because the extent of the network of scholars is not limited only to the immediately adjacent generations. Conversely, it is desirable to go as much as possible beyond the immediate generations upward (teacher ties) and downward (student ties). Geodesic distance is one for the Companions because there is only one "arch" in the graph between them and the Prophet; it is two for the Successors (layers 2 to 4 in our dataset which correspond to the old/early, middle-aged, and the young/late Successors) because there are only two arches between them and the Prophet. For the successive layers, it varies.

Table 8.10: Geodesic map

Table 8.10 displays the shortest path for each scholar in the network. The most striking aspect is the difference between the layer location and the number of nodes to the center. A comparison between the values in the column on geodesic distance with the values in the layer number will make this clear. For instance scholars from layer 15 had to go through 9 nodes to reach to the Prophet. Similarly, it took 13 nodes for scholars from layer 25 to reach to the Prophet. The column on GTP local reflects locally calculated prominence based on the relative value of the shortest path. The scholar with the shortest path in layer is given the score 1, and the rest is ranked accordingly.

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There are 6 cases for which geodesic distance value cannot be obtained because they did not have one of the top 3 from the previous layer as their teacher. These scholar consists of the following 5 figures: V:67, XII:139, XXIV:850, XLII:1028, and LXIV:1181. They, nevertheless, had other huffaz as their teachers. The rest of the cases all had at least one teacher from among the 3 with the highest scores.

Table 8.10 also demonstrates that the role of increase in the social temporal gap a ties helps to bridge. Hence, the role of this temporal structure needs to be accounted for in assessing the dynamics of authority formation. A weight value, therefore, needs to be introduced into the equation in order to reflect the role of generation distance on the value of a path distance. As explained above, in order to avoid treating an equal path distance from different generations the same way, we need to take the layer distance into consideration. The "layer number" is equal to the number of the generation a scholar belongs to. The total number of the layers equals the total number of generations in the data set (N=26). Excluding the generation of the Prophet and Suyuti, the generation of the author of the biographical dictionary himself who was also a *hafiz*, the number of layers in our data set is 24. Since it is a relative measure, the GTP (geodesic distance between teacher and the center/Prophet) value ranges between 0 and 1.

$$GTP = \left(1 + \frac{1}{GD}\right) * \underbrace{\left(1 + \frac{layer\#}{Nl}\right)}_{0 \le layervalue \le 1} \qquad \text{eq. (7.4)}$$

Where *GTP* stands for value for geodesic distance between teacher and the Prophet, *GD* for the geodesic distance or the number of nodes in the shortest chain of a scholar to the

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Prophet, *nl* stands for the layer number of the scholar, *Nl* stands for total number of layers.

The following model is intended to reflect the role of the network gap bridged by a tie (GTP) on social prominence by taking into account the geodesic values of each tie in the network of scholars.

$$ALPp = \frac{t}{T} * GTP \qquad \text{eq. (7.5)}$$

Where ALP_p stands for adjusted local prominence from proximity, t stands for total number of actual ties, T stands for the total number of possible ties, and GTP stands for the geodesic value of the distance between teacher and the Prophet. The relative social prominence scores produced by the e.q. (7.5) are presented in Table 8.11.

Table 8.11: Scores for Adjusted Local Prominence from Proximity to the Center

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Table 8.11 displays how proximity to the center bears upon social prominence. The stars are, for the most part, connected to the center *via* the shortest possible chain among their cohort.

Global Proximity from Local Distance

The previous section explored prominence from proximity to the center of the network. This section focuses on the processes that lead to proximity, which is the

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temporal distance between nodes. Shorter paths are produced by greater time distance between nodes of a path in a network through time. Closeness to the center, as aforementioned, depends on shorter path distance, which in turn, is contingent upon greater distances between its nodes. Consequently, the greater the time distance between ego and alter the more valuable the tie is. Applied to the hadith transmission network, the greater the layer distance between a scholar and his teachers and students, the more prominent he or she becomes.

Direct access to prominent teachers from earlier generations increases prominence of students. Similarly, to be sought after by younger generations increases prominence of a teacher and shows extended influence. In both cases, dependence on the otherwise necessary ties is eliminated. The direct consequence of eliminating dependency on mediators, as was elaborated earlier, is reflected on the reduced levels of reported speech.

Geodesic Distance to Teachers and Students

The following model is intended to reflect the role of geodesic distance value on local prominence. Geodesic distance here means generation distance to one's alters. More specifically, it is the layer distance between a scholar and his students and teachers. In other words, local prominence is adjusted by the distance between alter and ego. The value of a tie increases as the distance it helps to bridge increases.

Following this logic, the total number of ties to colleagues from the same layer is assigned the index value of 1. The number of ties to one unit distance is multiplied by 2. Ties to two-unit distance are multiplied by 3, and ties to three-step distance are multiplied by 4, and ties to four-step distances are multiplied by 5. Upward and downward distances

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are treated the same way because both have a similar impact on the prominence, owing to the reasons explained earlier.

On rare occasions, however, scholars from earlier generations learn and cite scholars from younger generations, which is termed "$Tdown_1$". Teacher connection from $Down_1$ also must be given special treatment because distance of this type does not usually work in favor of the older scholar because it demonstrates that he became a student of someone who is younger than himself. For this reason, $Tdown_1$ connections are not weighted the way as student connections to the same layer.

$$AlPd = \frac{t}{T} * gv \qquad \text{eq. (7.6)}$$

Where ALP_d stands for the adjusted local prominence from distance, t for the number of ties between ego (scholar under consideration) and alter (teacher or student), T for the number of total possible connections that ego can make to scholars of that layer (as teacher and student) and g_V for the generation distance value of alter (teacher or student). The g_V is obtained by taking into account the gap a teacher tie helps to bridge[13].

[13] If it is one step then the value assigned to the connections is 1, if is two step (Down1, Up1), then the assigned value is 2, if it is 3 (Up2 and Down2), then the assigned value is 3, and if its 4 (Up3 and Down3), then the assigned value is 4, and if it is 5 (Up4 and Down4), which is very rare, then the assigned value is 4.

$$Up_n = Down_n = n + 1$$
$$In = 1$$
$$Up_1 = Down_1 = 2$$
$$Up_2 = Down_2 = 3$$
$$Up_3 = Down_3 = 4$$
$$Up_4 = Down_4 = 5$$

$Tdown_1$=1 (if there is any).

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$$ALPd = \frac{\sum t * gv}{\sum T * gv} \qquad \text{eq. (7.7)}$$

$$ALPd = \frac{(tin*1)+((tup1+tdown1)*2)+((tup2+tdown2)*3)+((tup3+tdown3)*4)+((tup4+tdown4)*5)}{(Tin*1)+((Tup1+Tdown1)*2)+((Tup2+Tdown2)*3)+((Tup3+Tdown3)*4)+((Tup4+Tdown4)*5)}$$

The results are presented in the Table 8.2. The scores in this table are based on how distanced a scholar is to his alters. The greater the distance between him and his alters (teacher and students) the greater the social prominence; the smaller the distance between one and the people in his network the less the social prominence.

Table 8.12: Scores for Adjusted Local Prominence from Distance

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The LRS effect on the Micro Level

The above analysis demonstrated that scholars avoided connections to their fellows from the same layer although it was expedient for them to obtain narratives from their friends. This paradoxical finding leads us to another question. In other words, having identified the network patterns of prominent scholars does not provide an ultimate explanation to the question of authority formation because we still need an explanation of why such a network configuration emerged and persistently survived for centuries.

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The answer, I argue, lies on another plane, namely that of metalanguage. These scholars, as everyone else, were trying to reduce the levels of reported speech by obtaining it from the individuals who were closest in their time to the original source. Had they taken the narrative from their friends, their chain of narrative, and thus the levels of reported speech, would have undesirably extended. The attempt to reduce the levels of reported speech prompted them to seek for teachers who had fewer nodes in their narrative chains.

Yet, in the process, their social network gained, though out of sight, a particular shape. In other words, metalanguage implicity configured and reconfigured the network of scholars. Those who were more successful in reducing the levels of reported speech as students became prominent teachers later in their life because their network position attracted aspiring students.

Therefore, the role of metalanguage needs to be taken account in exploring the way students selected their teachers, why they had to wait until a certain age before they could teach, and why students were attracted to them as well. Without incorporating metalingustic processes in our analysis, we cannot find an explanation for the particular network configuration that characterized the social relations of prominent scholars.

Conclusion

The above analysis demonstrated that to become a star in the network one has to be the student of one. As I have mentioned earlier, others, especially parents, make decisions about teachers, for pupils who begin their education at a young age. In their early education, right teachers are primarily fortuitously selected for, but not by, the

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future prominent scholars because at that age they are still inexperienced children. There are only 5 scholars among 74 cases analyzed above who did not have one of the 3 scholars with the highest prominence scores from the previous layer as their teacher (V:67, XII:139, XXIV:850, XLII:1028, and LXIV:1181). The rest all had at least one hafiz teacher among the most prominent 3, yet not from his own layer in the majority of the cases. This observation provides answers to two questions about authority formation this chapter tackled. First, how did scholars gain authority in the hadith transmission network? Second, how was this authority transferred to their students? This observation also demonstrates the crucial role of cross-temporal or inter-layer relations in a discourse network, especially, with respect to authority formation because synchronic ties do not produce authority but rather it is outcome of diachronic ties.

Authority formation in a discourse community, such as the hadith transmission network, is underlined by the ongoing literary and social processes. For analytical purposes, these factors can be analyzed in isolation from each other. Yet, in order to get a more precise picture, one has to investigate their interrelations as well. This is the strategy I have applied above. This connection is well exposed on the level of metalanguage.

A discourse network heavily uses reported speech in its exchanges with previous and future generations. Add to this, the exchanges with other concomitant discourse networks. Authority formation can be traced within these diachronic exchanges between discourse networks.

These exchanges which are responsible for re-producing the same structures over centuries are themselves grounded on implicit literary mechanisms. More concretely,

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meta-language configures the network of scholars by implicitly shaping their exchanges with past and future generations, and with their own cohort.

To be precise, levels of reported speech (LRS) shapes, though unintentionally and implicitly, the patterns in discursive exchange between synchronic and diachronic networks. Social actors inadvertently try to report the speech from the closest point to the original source even if the accuracy of the report remains the same.

Two unintended outcomes can be identified on linguistic and social levels: inter-domain brokerage and reduced levels of reported speech. The two structures can be understood only in connection with each other as a meta-structure jointly produced by interplay between linguistic and social patterns and jointly reproducing the social structure.

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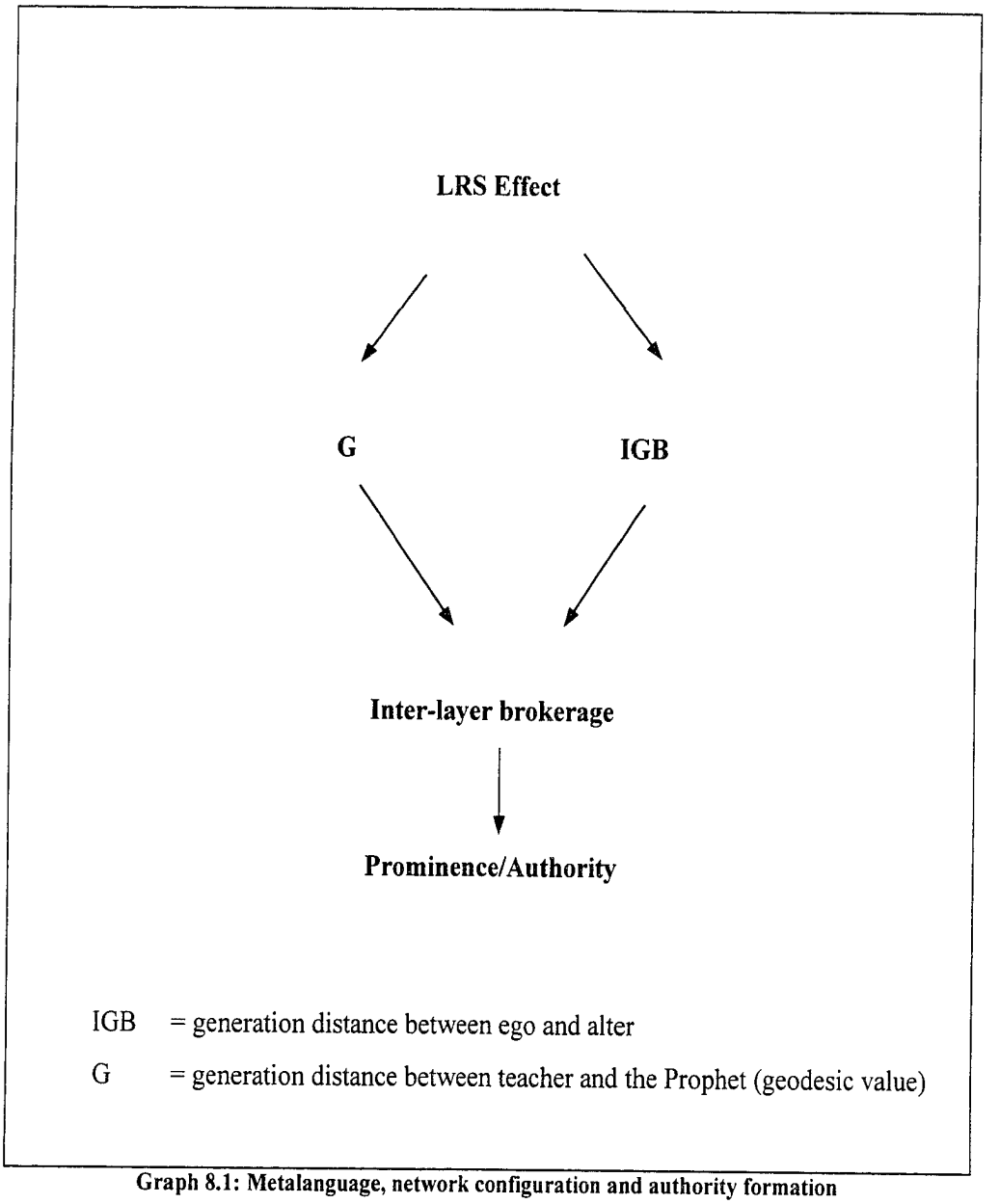

Graph 8.1: Metalanguage, network configuration and authority formation

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Table 8.1: The top 3 scholars from 26 layers, 610-1505

Case No	Hadith-Net Layer	Hadith-Net No	Book Layer	Book No*	Name of the Scholar
1	1	1	0	0	Prophet Muhammad, Alayhissalam
2	2	14	1	13	Umm al-Mu'minin Aishah
3	2	17	1	16	Abu Hurayrah
4	2	3	1	2	Umar
5	3	67	2	66	al-Hasan al-Basri
6	3	39	2	38	Sa'id b. al-Musayyab
7	3	47	2	46	Abu Wail Shaqiq b. Salamah
8	4	93	3	92	Nafi'
9	4	77	3	76	al-Sha'bi
10	4	75	3	74	Muhammad b. Sirin
11	5	150	4	149	al-'Amash
12	5	139	4	138	Hisham b. Urwah
13	5	98	4	97	al-Zuhri
14	6	188	5	187	Shu'bah
15	6	199	5	198	Sufyan al-Thawri
16	6	200	5	199	Malik b. Anas
17	7	250	6	249	Sufyan b. Uyaynah
18	7	261	6	260	Abdullah b. Mubarak
19	7	281	6	280	Yahya b. Qattan
20	8	341	7	340	Abu Dawud al-Tayalisi
21	8	370	7	369	Abu Nu'aym
22	8	358	7	357	Dawud b. Yahya
23	9	439	8	438	Ahmad b. Hanbal
24	9	441	8	440	Ishaq b. Ibrahim (Ibn Rahuyah)
25	9	438	8	437	Yahya b. Ma'in
26	10	579	9	578	al-Bukhari
27	10	614	9	613	Muslim b. al-Hajjaj
28	10	580	9	579	Abu Zur'ah
29	11	720	10	719	al-Nasa'i
30	11	660	10	659	Ibn Majah
31	11	735	10	734	Ibn Khuzaymah
32	12	807	11	806	Ibn al-Sharqi
33	12	809	11	808	al-Mahamili
34	12	850	11	849	Abu Bakr al-Shafii
35	13	876	12	875	al-Tabarani
36	13	926	12	925	al-Daraqutni
37	13	870	12	869	Abu Ali al-Hafiz
38	14	963	13	962	al-Hakim
39	14	994	13	993	Abu Nu'aym
40	14	960	13	959	Ibn Mandah
41	15	1016	14	1015	al-Katib
42	15	1028	14	1027	al-Baji
43	15	1032	14	1031	Sulayman b. Ibrahim
44	16	1080	15	1079	Muhammad b. Nasir
45	16	1054	15	1053	Muhammad b. Tahir
46	16	1042	15	1041	al-Humaydi
47	17	1083	16	1082	al-Silafi
48	17	1095	16	1094	Ibn 'Asakir
49	17	1096	16	1095	Abu Musa al-Madaini
50	18	1116	17	1115	Ibn al-Akhdar
51	18	1118	17	1117	Abdulqadir b. Abdillah
52	18	1113	17	1112	Abdulghani
53	19	1130	18	1129	al-Diya
54	19	1138	18	1137	al-Birzali
55	19	1133	18	1132	Ibn al-Khalil
56	20	1160	19	1159	Ibn al-Sabuni
57	20	1150	19	1149	al-Birzali
58	20	1152	19	1151	Ahmad b. Aybak
59	21	1167	20	1166	al-Husayni
60	21	1166	20	1165	al-'is'irdi
61	21	1168	20	1167	Ibn al-Zahiri
62	22	1178	21	1144	al-Dhahabi
63	22	1177	21	1176	al-Mizzi
64	22	1181	21	1147	Ibn Abdilhadi
65	23	1195	22	1161	Ibn Kathir
66	23	1194	22	1160	al-'Alai
67	23	1198	22	1164	al-'Izz b. Jama'ah
68	24	1209	23	1175	al-'Iraqi
69	24	1208	23	1174	al-Bulqiyni
70	24	1206	23	1172	Ibn Sanad
71	25	1216	24	1182	Waliyyuddin b. Al-'Iraqi
72	25	1222	24	1188	Shihab al-Busiri
73	25	1215	24	1181	Abu Hamid b. Zahirah
74	26	1232	25		Suyuti

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Table 8.2: Total Number of Teacher and Student Connections

ase N	LAYER	NO	TOTAL	RANK	STOTAL	SRank	TTOTAL	TRank
1	1	1	23	1	23	1	0	1
3	2	14	34	2	32	2	2	1
2	2	17	34	1	29	1	5	2
4	2	3	30	3	28	3	2	3
6	3	67	28	2	21	2	7	1
5	3	39	24	1	14	1	10	2
7	3	47	14	3	7	3	7	3
9	4	93	30	2	25	3	5	1
10	4	77	24	3	12	2	12	2
8	4	75	23	1	14	1	9	3
13	5	150	46	3	28	3	18	1
11	5	139	44	1	41	2	3	2
12	5	98	43	2	24	1	19	3
15	6	188	87	2	43	3	44	1
14	6	199	69	1	24	1	45	2
16	6	200	64	3	41	2	23	3
17	7	250	104	1	64	1	40	1
18	7	261	56	2	20	2	36	2
19	7	281	46	3	20	3	26	3
20	8	341	127	1	10	3	117	1
22	8	370	47	3	35	2	12	2
21	8	358	38	2	25	1	13	3
23	9	439	122	1	19	2	103	1
24	9	441	94	2	36	1	58	2
25	9	438	59	3	15	3	44	3
26	10	579	138	1	10	3	128	1
27	10	614	90	2	12	2	78	2
28	10	580	67	3	21	1	46	3
29	11	720	82	1	8	2	74	1
30	11	660	64	2	3	3	61	2
31	11	735	64	3	17	1	47	3
32	12	807	30	1	5	2	25	1
34	12	809	30	3	7	3	23	2
33	12	850	29	2	4	1	25	3
35	13	876	48	1	8	1	40	1
37	13	926	43	3	8	3	35	2
36	13	870	41	2	4	2	37	3
38	14	963	42	1	8	2	34	1
39	14	994	32	2	8	3	24	2
40	14	960	29	3	11	1	18	3
41	15	1016	35	1	12	1	23	1
43	15	1028	10	3	7	3	3	2
42	15	1032	10	2	6	2	4	3
44	16	1080	21	1	10	1	11	1
46	16	1054	15	3	7	3	8	2
45	16	1042	13	2	4	2	9	3
47	17	1083	30	1	13	1	17	1
49	17	1095	15	3	7	3	8	2
48	17	1096	13	2	4	2	9	3
51	18	1116	15	2	12	2	3	1
52	18	1118	14	3	6	3	8	2
50	18	1113	12	1	6	1	6	3
54	19	1130	14	2	3	3	11	1
53	19	1138	13	1	1	1	12	2
55	19	1133	12	3	2	2	10	3
56	20	1160	9	1	4	1	5	1
58	20	1150	6	3	4	3	2	2
57	20	1152	4	2	1	2	3	3
59	21	1167	17	1	7	1	10	1
61	21	1166	6	3	5	3	1	2
60	21	1168	6	2	1	2	5	3
62	22	1178	10	1	1	3	9	1
63	22	1177	7	2	3	2	4	2
64	22	1181	5	3	4	1	1	3
65	23	1195	5	1	3	1	2	1
67	23	1194	3	3	3	3	0	2
66	23	1198	2	2	1	2	1	3
68	24	1209	11	1	6	1	5	1
69	24	1208	7	2	3	2	4	2
70	24	1206	2	3	0	3	2	3
71	25	1216	3	1	0	1	3	1
72	25	1222	3	2	0	2	3	2
73	25	1215	2	3	0	3	2	3
74	26			1		1		1

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able 8.3: List of All Connections in the Subset

Case No	Teacher layer	Teacher no	Studet no	Student layer
1	1	1	14	2
2	1	1	17	2
3	2	3	17	2
4	1	1	3	2
5	2	14	39	3
6	2	17	39	3
7	2	3	39	3
8	2	14	47	3
9	2	3	47	3
10	2	14	93	4
11	2	17	93	4
12	2	14	77	4
13	2	17	77	4
14	2	17	75	4
15	3	47	150	5
16	4	77	150	5
17	7	250	150	5
18	3	39	98	5
19	3	67	188	6
20	5	150	188	6
21	5	139	188	6
22	7	250	188	6
23	5	150	199	6
24	5	139	199	6
25	6	188	199	6
26	4	93	200	6
27	5	139	200	6
28	5	98	200	6
29	5	150	250	7
30	5	139	250	7
31	5	98	250	7
32	5	139	261	7
33	6	188	261	7
34	6	199	261	7
35	6	200	261	7
36	7	250	261	7
37	8	370	261	7
38	5	150	281	7
39	5	139	281	7
40	6	199	281	7
41	6	200	281	7
42	6	188	341	8
43	9	439	341	8
44	9	441	341	8
45	9	438	341	8
46	5	150	370	8

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47	6	188	370	8
48	6	199	358	8
49	7	250	439	9
50	7	281	439	9
51	8	341	439	9
52	8	370	439	9
53	8	358	439	9
54	9	441	439	9
55	9	438	439	9
56	7	250	441	9
57	7	261	441	9
58	7	281	441	9
59	8	370	441	9
60	8	358	441	9
61	7	250	438	9
62	7	261	438	9
63	7	281	438	9
64	8	370	438	9
65	8	358	438	9
66	9	441	438	9
67	8	370	579	10
68	9	439	579	10
69	9	441	579	10
70	9	438	579	10
71	11	735	579	10
72	9	439	614	10
73	9	441	614	10
74	9	438	614	10
75	10	580	614	10
76	11	735	614	10
77	8	370	580	10
78	9	439	580	10
79	9	438	580	10
80	9	441	720	11
81	10	580	720	11
82	10	580	660	11
83	9	441	735	11
84	10	579	735	11
85	10	614	735	11
86	10	579	807	12
87	10	614	807	12
88	10	579	809	12
89	11	720	876	13
90	12	809	926	13
91	12	850	926	13
92	14	963	926	13
93	11	735	870	13
94	12	807	870	13
95	13	926	963	14

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96	13	870	963	14
97	14	960	963	14
98	13	876	994	14
99	13	926	994	14
100	14	960	994	14
101	15	1032	994	14
102	13	870	960	14
103	14	994	1016	15
104	15	1028	1016	15
105	15	1032	1016	15
106	16	1042	1016	15
107	14	994	1032	15
108	16	1054	1080	16
109	16	1042	1080	16
110	17	1083	1054	16
111	15	1016	1042	16
112	15	1028	1042	16
113	14	994	1083	17
114	16	1080	1083	17
115	16	1054	1083	17
116	16	1080	1095	17
117	17	1083	1095	17
118	14	960	1096	17
119	16	1080	1096	17
120	16	1054	1096	17
121	16	1080	1116	18
122	17	1083	1118	18
123	17	1095	1118	18
124	17	1096	1118	18
125	18	1113	1118	18
126	17	1083	1113	18
127	17	1096	1113	18
128	17	1083	1130	19
129	18	1116	1130	19
130	18	1118	1130	19
131	18	1113	1130	19
132	18	1116	1138	19
133	18	1118	1138	19
134	20	1160	1138	19
135	21	1167	1138	19
136	21	1166	1138	19
137	18	1116	1133	19
138	18	1118	1133	19
139	18	1113	1133	19
140	17	1083	1160	20
141	19	1138	1160	20
142	18	1116	1150	20
143	21	1167	1152	20
144	21	1166	1152	20

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145	21	1168	1152	20
146	19	1133	1167	21
147	20	1160	1167	21
148	20	1150	1166	21
149	19	1130	1168	21
150	21	1166	1168	21
151	20	1150	1178	22
152	22	1181	1178	22
153	23	1195	1178	22
154	23	1194	1178	22
155	20	1160	1177	22
156	21	1166	1177	22
157	22	1181	1177	22
158	22	1177	1195	23
159	21	1167	1198	23
160	22	1181	1209	24
161	23	1195	1209	24
162	23	1194	1209	24
163	23	1198	1209	24
164	22	1178	1208	24
165	22	1177	1208	24
166	22	1181	1208	24
167	23	1195	1206	24
168	23	1194	1206	24
169	24	1209	1216	25
170	24	1208	1216	25
171	24	1209	1222	25
172	24	1208	1222	25
173	24	1209	1215	25
174	24	1208	1215	25

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Table 8.4: Scores for Local Prominence

Case No	LAYER	NO	Local Prominance	Student Prom	Teacher Prom
1	1	1	1.00	0.00	1.00
3	2	17	1.00	1.00	1.00
2	2	14	1.00	0.40	1.10
4	2	3	0.88	0.40	0.97
6	3	39	0.86	1.00	0.67
5	3	67	1.00	0.70	1.00
7	3	47	0.58	0.70	0.33
9	4	77	0.80	1.00	0.48
10	4	75	0.77	0.75	0.56
8	4	93	1.00	0.42	1.00
13	5	98	0.93	1.00	0.59
11	5	150	1.00	0.95	0.68
12	5	139	0.96	0.16	1.00
15	6	199	0.79	1.00	0.56
14	6	188	1.00	0.98	1.00
16	6	200	0.74	0.51	0.95
17	7	250	1.00	1.00	1.00
18	7	261	0.54	0.90	0.31
19	7	281	0.44	0.65	0.31
20	8	341	1.00	1.00	0.29
22	8	358	0.30	0.11	0.71
21	8	370	0.37	0.10	1.00
23	9	439	1.00	1.00	0.53
24	9	441	0.77	0.56	1.00
25	9	438	0.48	0.43	0.42
26	10	579	1.00	1.00	0.48
27	10	614	0.65	0.61	0.57
28	10	580	0.49	0.36	1.00
29	11	720	1.00	1.00	0.47
30	11	660	0.78	0.82	0.18
31	11	735	0.78	0.64	1.00
32	12	807	1.00	1.00	0.71
34	12	850	0.97	1.00	0.57
33	12	809	1.00	0.92	1.00
35	13	876	1.00	1.00	1.00
37	13	870	0.85	0.93	0.50
36	13	926	0.90	0.88	1.00
38	14	963	1.00	1.00	0.73
39	14	994	0.76	0.71	0.73
40	14	960	0.69	0.53	1.00
41	15	1016	1.00	1.00	1.00
43	15	1032	0.29	0.17	0.50
42	15	1028	0.29	0.13	0.58
44	16	1080	1.00	1.00	1.00
46	16	1042	0.62	0.82	0.40
45	16	1054	0.71	0.73	0.70
47	17	1083	1.00	1.00	1.00
49	17	1096	0.43	0.53	0.31
48	17	1095	0.50	0.47	0.54
51	18	1118	0.93	1.00	1.00
52	18	1113	0.80	0.75	1.00
50	18	1116	1.00	0.38	2.00
54	19	1138	0.93	1.00	0.33
53	19	1130	1.00	0.92	1.00
55	19	1133	0.86	0.83	0.67
56	20	1160	1.00	1.00	1.00
58	20	1152	0.44	0.60	0.25
57	20	1150	0.67	0.40	1.00
59	21	1167	1.00	1.00	1.00
61	21	1168	0.35	0.50	0.14
60	21	1166	0.35	0.10	0.71
62	22	1178	1.00	1.00	0.25
63	22	1177	0.70	0.44	0.75
64	22	1181	0.50	0.11	1.00
65	23	1195	1.00	1.00	1.00
67	23	1198	0.40	0.50	0.33
66	23	1194	0.60	0.00	1.00
68	24	1209	1.00	1.00	1.00
69	24	1208	0.64	0.80	0.50
70	24	1206	0.18	0.40	0.00
71	25	1216	1.00	1.00	n.a.
72	25	1222	1.00	1.00	n.a.
73	25	1215	0.67	0.67	n.a.
74	26	1232	1.00	1.00	n.a.

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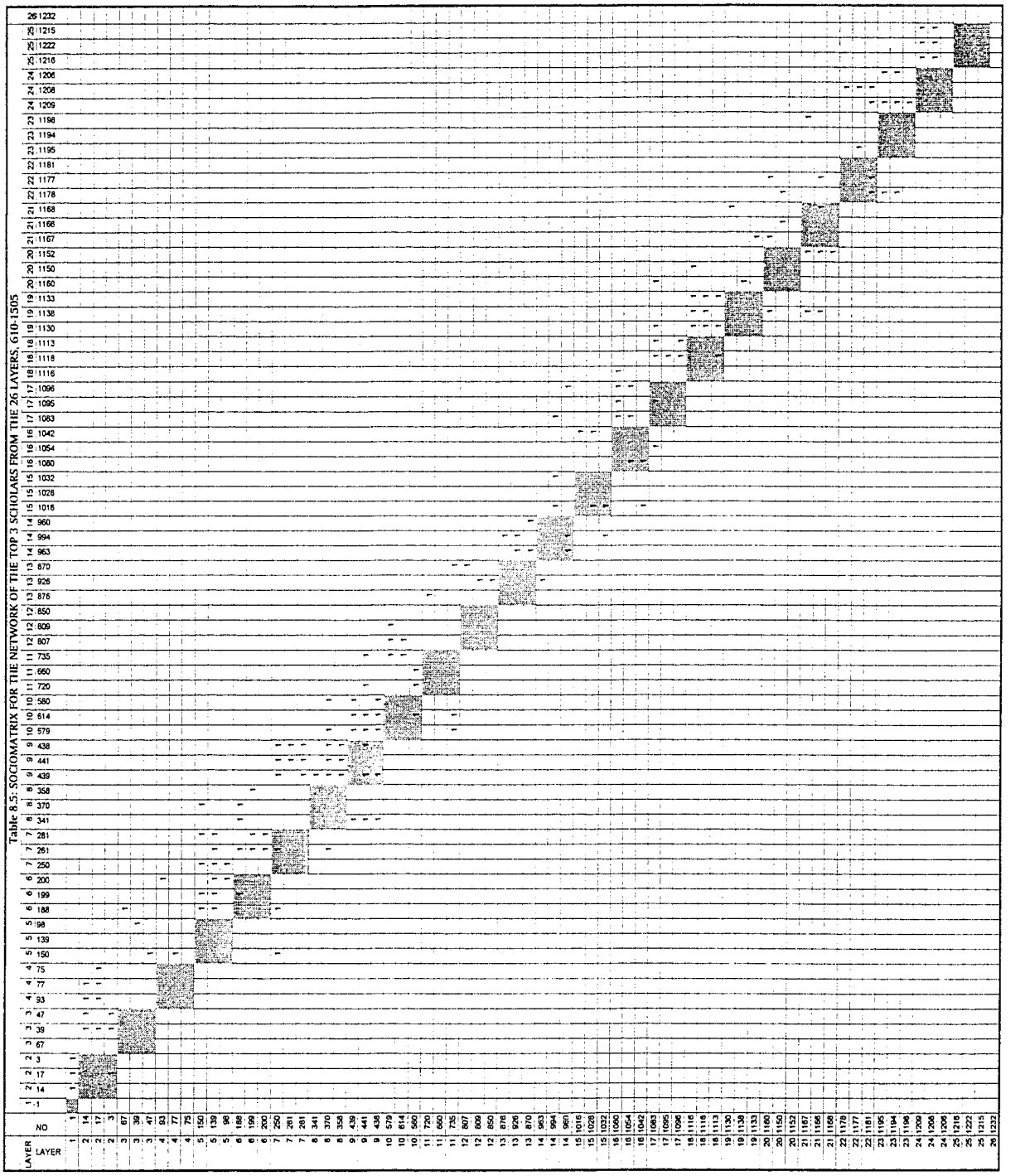

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Table 8. 6: Student Connections and Distance

Case n	H-N n	Sup	Sup2	Sup1	Sin	Sdown1	Sdown2	Sdown3	Sdown4	SSUM
1	1					1 1 1				3
2	14					1 1	1 1			4
2	17					1	1 1 1			4
2	3				1	1 1				3
3	67							1		1
3	39						1			1
3	47						1			1
4	93						1			1
4	77					1				1
4	75									0
5	150					1 1	1 1	1		5
5	139					1 1 1	1 1 1			6
5	98					1	1			2
6	188				1	1	1 1			4
6	199					1 1	1			3
6	200					1 1				2
7	250		1	1	1		1 1 1			6
7	261						1 1			2
7	281						1 1 1			3
8	341					1				1
8	370			1		1 1 1	1 1			6
8	358					1 1 1				3
9	439			1		1 1 1				4
9	441			1	1 1	1 1	1 1			7
9	438			1	1	1 1 1				5
10	579					1	1 1			3
10	614					1	1			2
10	580				1	1 1				3
11	720						1			1
11	660									0
11	735			1 1			1			3
12	807					1				1
12	809					1				1
12	850					1				1
13	876					1				1
13	926					1 1				2
13	870					1	1			2
14	963			1						1
14	994					1	1	1		3
14	960				1 1				1	3
15	1016						1			1
15	1028				1		1			2
15	1032			1	1					2
16	1080					1 1 1	1			4
16	1054				1	1	1			3
16	1042		1		1					2
17	1083			1	1	1 1	1	1		6
17	1095					1				1
17	1096					1 1				2
18	1116					1 1 1	1			4
18	1118					1 1 1				3
18	1113				1	1	1			3
19	1130						1			1
19	1138					1				1
19	1133						1			1
20	1160			1		1	1			3
20	1150					1	1			2
20	1152									0
21	1167		1		1		1			3
21	1166		1		1 1	1				4
21	1168				1					1
22	1178						1			1
22	1177					1	1			2
22	1181				1 1		1 1			4
23	1195			1		1	1			3
23	1194			1		1	1			3
23	1198					1				1
24	1209					1 1 1				3
24	1208					1 1 1				3
24	1206									0
25	1216									0
25	1222									0
25	1215									0
26	1232									0

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Table 8.7: Teacher Connections and Distance

Case n	H-N n	TUp4	TUp3	TUp2	TUp1	TIn	TDown1	TDown2	TDown3	TSUM
1	1									0
2	14				1					1
2	17				1	1				2
2	3				1					1
3	67									0
3	39				1 1 1					3
3	47				1 1					2
4	93			1 1						2
4	77			1 1						2
4	75			1						1
5	150			1	1			1		3
5	139									0
5	98			1						1
6	188		1		1 1		1			4
6	199				1 1	1				3
6	200			1	1 1					3
7	250			1 1 1						3
7	261			1	1 1 1	1	1			6
7	281			1 1	1 1					4
8	341			1			1 1 1			4
8	370		1	1						2
8	358			1						1
9	439			1 1	1 1 1	1 1				7
9	441			1 1 1	1 1					5
9	438			1 1 1	1 1	1				6
10	579			1	1 1 1		1			5
10	614				1 1 1	1	1			5
10	580			1	1 1					3
11	720			1	1					2
11	660				1					1
11	735			1	1 1					3
12	807			1 1						2
12	809			1						1
12	850									0
13	876			1						1
13	926				1 1		1			3
13	870			1	1					2
14	963				1 1	1				3
14	994				1 1	1	1			4
14	960				1					1
15	1016				1	1 1	1			4
15	1028									0
15	1032				1					1
16	1080					1 1				2
16	1054						1			1
16	1042				1 1					2
17	1083		1		1 1					3
17	1095				1	1				2
17	1096		1		1 1					3
18	1116			1						1
18	1118				1 1 1	1				4
18	1113				1 1					2
19	1130			1	1 1 1					4
19	1138				1 1		1	1 1		5
19	1133				1 1 1					3
20	1160		1		1					2
20	1150			1						1
20	1152						1 1 1			3
21	1167			1	1					2
21	1166				1					1
21	1168			1		1				2
22	1178			1		1	1 1			4
22	1177			1	1	1				3
22	1181									0
23	1195				1					1
23	1194									0
23	1198			1						1
24	1209			1	1 1 1					4
24	1208			1 1 1						3
24	1206				1 1					2
25	1216				1 1					2
25	1222				1 1					2
25	1215				1 1					2
26	1232									0

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Table 8.8: Total Number of Connections to Distances

Case n	H-N n	Up4	Up3	Up2	Up1	In	Down1	Down2	Down3	Down4	SUM
1	1	0	0	0	0	0	3	0	0	0	3
2	14	0	0	0	1	0	2	2	0	0	5
2	17	0	0	0	1	1	1	3	0	0	6
2	3	0	0	0	1	1	2	0	0	0	4
3	67	0	0	0	0	0	0	0	1	0	1
3	39	0	0	0	3	0	0	1	0	0	4
3	47	0	0	0	2	0	0	1	0	0	3
4	93	0	0	2	0	0	0	1	0	0	3
4	77	0	0	2	0	0	1	0	0	0	3
4	75	0	0	1	0	0	0	0	0	0	1
5	150	0	0	1	1	0	2	3	1	0	8
5	139	0	0	0	0	0	3	3	0	0	6
5	98	0	0	1	0	0	1	1	0	0	3
6	188	0	1	0	2	1	2	2	0	0	8
6	199	0	0	0	2	1	2	1	0	0	6
6	200	0	0	1	2	0	2	0	0	0	5
7	250	0	0	4	1	1	0	3	0	0	9
7	261	0	0	1	3	1	1	2	0	0	8
7	281	0	0	2	2	0	0	3	0	0	7
8	341	0	0	1	0	0	4	0	0	0	5
8	370	0	1	1	1	0	3	2	0	0	8
8	358	0	0	1	0	0	3	0	0	0	4
9	439	0	0	2	4	2	3	0	0	0	11
9	441	0	0	3	3	2	2	2	0	0	12
9	438	0	0	3	3	2	3	0	0	0	11
10	579	0	0	1	3	0	2	2	0	0	8
10	614	0	0	0	3	1	2	1	0	0	7
10	580	0	0	1	2	1	2	0	0	0	6
11	720	0	0	1	1	0	0	1	0	0	3
11	660	0	0	0	1	0	0	0	0	0	1
11	735	0	0	1	4	0	0	1	0	0	6
12	807	0	0	2	0	0	1	0	0	0	3
12	809	0	0	1	0	0	1	0	0	0	2
12	850	0	0	0	0	0	1	0	0	0	1
13	876	0	0	1	0	0	1	0	0	0	2
13	926	0	0	0	2	0	3	0	0	0	5
13	870	0	0	1	1	0	2	0	0	0	4
14	963	0	0	0	3	1	0	0	0	0	4
14	994	0	0	0	2	1	3	0	1	0	7
14	960	0	0	0	1	2	0	0	1	0	4
15	1016	0	0	0	1	2	2	0	0	0	5
15	1028	0	0	0	0	1	1	0	0	0	2
15	1032	0	0	0	2	1	0	0	0	0	3
16	1080	0	0	0	0	2	3	1	0	0	6
16	1054	0	0	0	0	1	3	0	0	0	4
16	1042	0	0	0	3	1	0	0	0	0	4
17	1083	0	1	0	3	1	2	1	1	0	9
17	1095	0	0	0	1	1	1	0	0	0	3
17	1096	0	1	0	2	0	2	0	0	0	5
18	1116	0	0	1	0	0	3	1	0	0	5
18	1118	0	0	0	3	1	3	0	0	0	7
18	1113	0	0	0	2	1	2	0	0	0	5
19	1130	0	0	1	3	0	0	1	0	0	5
19	1138	0	0	0	2	0	2	2	0	0	6
19	1133	0	0	0	3	0	0	1	0	0	4
20	1160	0	1	0	2	0	1	1	0	0	5
20	1150	0	0	1	0	0	1	1	0	0	3
20	1152	0	0	0	0	0	3	0	0	0	3
21	1167	0	0	2	2	0	0	1	0	0	5
21	1166	0	0	1	2	1	1	0	0	0	5
21	1168	0	0	1	1	1	0	0	0	0	3
22	1178	0	0	1	0	1	2	1	0	0	5
22	1177	0	0	1	1	1	1	1	0	0	5
22	1181	0	0	0	0	2	0	2	0	0	4
23	1195	0	0	0	2	0	2	0	0	0	4
23	1194	0	0	0	1	0	2	0	0	0	3
23	1198	0	0	1	0	0	1	0	0	0	2
24	1209	0	0	1	3	0	3	0	0	0	7
24	1208	0	0	3	0	0	3	0	0	0	6
24	1206	0	0	0	2	0	0	0	0	0	2
25	1216	0	0	0	2	0	0	0	0	0	2
25	1222	0	0	0	2	0	0	0	0	0	2
25	1215	0	0	0	2	0	0	0	0	0	2
26	1232	0	0	0	0	0	0	0	0	0	0

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Table 8.9: Distance Table to an Array of Ranges

Case n	H-N n	Range1	Range2	Range3	Range4	Range5	SUM
1	1	0	3	0	0	0	3
2	14	0	3	2	0	0	5
2	17	1	2	3	0	0	6
2	3	1	3	0	0	0	4
3	67	0	0	0	1	0	1
3	39	0	3	1	0	0	4
3	47	0	2	1	0	0	3
4	93	0	0	3	0	0	3
4	77	0	1	2	0	0	3
4	75	0	0	1	0	0	1
5	150	0	3	4	1	0	8
5	139	0	3	3	0	0	6
5	98	0	1	2	0	0	3
6	188	1	4	2	1	0	8
6	199	1	4	1	0	0	6
6	200	0	4	1	0	0	5
7	250	1	1	7	0	0	9
7	261	1	4	3	0	0	8
7	281	0	2	5	0	0	7
8	341	0	4	1	0	0	5
8	370	0	4	3	1	0	8
8	358	0	3	1	0	0	4
9	439	2	7	2	0	0	11
9	441	2	5	5	0	0	12
9	438	2	6	3	0	0	11
10	579	0	5	3	0	0	8
10	614	1	5	1	0	0	7
10	580	1	4	1	0	0	6
11	720	0	1	2	0	0	3
11	660	0	1	0	0	0	1
11	735	0	4	2	0	0	6
12	807	0	1	2	0	0	3
12	809	0	1	1	0	0	2
12	850	0	1	0	0	0	1
13	876	0	1	1	0	0	2
13	926	0	5	0	0	0	5
13	870	0	3	1	0	0	4
14	963	1	3	0	0	0	4
14	994	1	5	0	1	0	7
14	960	2	1	0	1	0	4
15	1016	2	3	0	0	0	5
15	1028	1	1	0	0	0	2
15	1032	1	2	0	0	0	3
16	1080	2	3	1	0	0	6
16	1054	1	3	0	0	0	4
16	1042	1	3	0	0	0	4
17	1083	1	5	1	2	0	9
17	1095	1	2	0	0	0	3
17	1096	0	4	0	1	0	5
18	1116	0	3	2	0	0	5
18	1118	1	6	0	0	0	7
18	1113	1	4	0	0	0	5
19	1130	0	3	2	0	0	5
19	1138	0	4	2	0	0	6
19	1133	0	3	1	0	0	4
20	1160	0	3	1	1	0	5
20	1150	0	1	2	0	0	3
20	1152	0	3	0	0	0	3
21	1167	0	2	3	0	0	5
21	1166	1	3	1	0	0	5
21	1168	1	1	1	0	0	3
22	1178	1	2	2	0	0	5
22	1177	1	2	2	0	0	5
22	1181	2	0	2	0	0	4
23	1195	0	4	0	0	0	4
23	1194	0	3	0	0	0	3
23	1198	0	1	1	0	0	2
24	1209	0	6	1	0	0	7
24	1208	0	3	3	0	0	6
24	1206	0	2	0	0	0	2
25	1216	0	2	0	0	0	2
25	1222	0	2	0	0	0	2
25	1215	0	2	0	0	0	2
26	1232	0	0	0	0	0	0

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Table 8.10: Geodesic Map

Case No	Layer	H.Net no	Geodesic Distance	Nodes in the shortest paths	GTP local
1	1	1	0		
2	2	14	1	1	1.000
3	2	17	1	1	1.000
4	2	3	1	1	1.000
5	3	67	0		0.000
6	3	39	2	1 2	1.000
7	3	47	2	1 2	1.000
8	4	93	2	1 2	1.000
9	4	77	2	1 2	1.000
10	4	75	2	1 3	1.000
11	5	150	3	1 2 7	1.000
12	5	139	0		0.000
13	5	98	3	1 2 6	1.000
14	6	188	4	1 2 7 11	0.750
15	6	199	4	1 2 7 11	0.750
16	6	200	3	1 2 8	1.000
17	7	250	4	1 2 6 13	1.000
18	7	261	4	1 2 8 16	1.000
19	7	281	4	1 2 7 11	1.000
20	8	341	5	1 2 7 11 14	0.800
21	8	370	4	1 2 7 11	1.000
22	8	358	5	1 2 7 11 15	0.800
23	9	439	5	1 2 6 13 17	1.000
24	9	441	5	1 2 6 13 17	1.000
25	9	438	5	1 2 6 13 17	1.000
26	10	579	5	1 2 7 11 21	1.000
27	10	614	6	1 2 6 13 17 23	0.833
28	10	580	5	1 2 7 11 21	1.000
29	11	720	6	1 2 6 13 17 24	1.000
30	11	660	6	1 2 7 11 21 28	1.000
31	11	735	6	1 2 6 13 17 24	1.000
32	12	807	6	1 2 7 11 21 26	1.000
33	12	809	6	1 2 7 11 21 26	1.000
34	12	850	0		0.000
35	13	876	7	1 2 6 13 17 24 29	1.000
36	13	926	7	1 2 7 11 21 26 33	1.000
37	13	870	7	1 2 6 13 17 24 31	1.000
38	14	963	8	1 2 6 13 17 24 31 37	1.000
39	14	994	8	1 2 6 13 17 24 29 35	1.000
40	14	960	8	1 2 6 13 17 24 31 37	1.000
41	15	1016	9	1 2 6 13 17 24 29 35 39	1.000
42	15	1028	0		0.000
43	15	1032	9	1 2 6 13 17 24 29 35 39	1.000
44	16	1080	11	1 2 6 13 17 24 29 35 39 41 46	0.909
45	16	1054	10	1 2 6 13 17 24 29 35 39 47	1.000
46	16	1042	10	1 2 6 13 17 24 29 35 39 41	1.000
47	17	1083	9	1 2 6 13 17 24 29 35 39	1.000
48	17	1095	10	1 2 6 13 17 24 29 35 39 47	0.900
49	17	1096	9	1 2 6 13 17 24 31 37 4	1.000
50	18	1116	12	1 2 6 13 17 24 29 35 39 41 46 44	0.833
51	18	1118	10	1 2 6 13 17 24 29 35 39 47	1.000
52	18	1113	10	1 2 6 13 17 24 29 35 39 47	1.000
53	19	1130	10	1 2 6 13 17 24 29 35 39 47	1.000
54	19	1138	11	1 2 6 13 17 24 29 35 39 47 51	0.909
55	19	1133	11	1 2 6 13 17 24 29 35 39 47 51	0.909
56	20	1160	10	1 2 6 13 17 24 29 35 39 47	1.000
57	20	1150	13	1 2 6 13 17 24 29 35 39 41 46 44 5	0.769
58	20	1152	12	1 2 6 13 17 24 29 35 39 47 53 61	0.833
59	21	1167	11	1 2 6 13 17 24 29 35 39 47 56	1.000
60	21	1166	14	1 2 6 13 17 24 29 35 39 41 46 44 5 57	0.786
61	21	1168	11	1 2 6 13 17 24 29 35 39 47 53	1.000
62	22	1178	13	1 2 6 13 17 24 29 35 39 47 56 63 65	0.846
63	22	1177	11	1 2 6 13 17 24 29 35 39 47 56	1.000
64	22	1181	0		0.000
65	23	1195	12	1 2 6 13 17 24 29 35 39 47 56 63	1.000
66	23	1194	0		0.000
67	23	1198	12	1 2 6 13 17 24 29 35 39 47 56 59	1.000
68	24	1209	13	1 2 6 13 17 24 29 35 39 47 56 59 67	0.923
69	24	1208	12	1 2 6 13 17 24 29 35 39 47 56 63	1.000
70	24	1206	13	1 2 6 13 17 24 29 35 39 47 56 63 65	0.923
71	25	1216	13	1 2 6 13 17 24 29 35 39 47 56 63 69	1.000
72	25	1222	13	1 2 6 13 17 24 29 35 39 47 56 63 69	1.000
73	25	1215	13	1 2 6 13 17 24 29 35 39 47 56 63 69	1.000
74	26	1232	0		0

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Table 8.11: Scores for Adjusted Local Prominence from Proximity (ALPd)

Case No	Layer	H.Net no	Geodesic Distance	Connection	GTP	Tsum	LP	Weighted Sum	ALPp
1	1	**1**	0						
2	2	**14**	1	1	1	1.00	1.00	1.00	1.00
3	2	**17**	1	1	1	1.00	1.00	1.00	1.00
4	2	**3**	1	1	1	1.00	1.00	1.00	1.00
5	3	**67**	0	0	1	0.00		0.00	
6	3	**39**	2	2	1	3.00	1.00	3.00	1.00
7	3	**47**	2	2	1	2.00	0.67	2.00	0.67
8	4	**93**	2	2	1	2.00	1.00	2.00	1.00
9	4	**77**	2	2	1	2.00	1.00	2.00	1.00
10	4	**75**	2	3	1	1.00	0.50	1.00	0.50
11	5	**150**	3	7	1	3.00	1.00	1.00	1.00
12	5	**139**	0	0	1	0.00		0.00	
13	5	**98**	3	6	1	1.00	0.33	0.50	0.50
14	6	**188**	4	11	1	4.00	1.00	0.00	0.67
15	6	**199**	4	11	1	3.00	0.75	0.00	1.17
16	6	**200**	3	8	1	3.00	0.75	0.00	1.67
17	7	**250**	4	13	1	3.00	0.50	1.33	0.62
18	7	**261**	4	16	1	6.00	1.00	2.17	1.00
19	7	**281**	4	11	1	4.00	0.67	1.83	0.85
20	8	**341**	5	14	1	4.00	1.00	0.50	0.75
21	8	**370**	4	11	1	1.00	0.25	0.67	1.00
22	8	**358**	5	15	1	1.00	0.25	0.50	0.75
23	9	**439**	5	17	1	7.00	1.00	4.65	1.00
24	9	**441**	5	17	1	5.00	0.71	3.60	0.77
25	9	**438**	5	17	1	6.00	0.86	4.20	0.90
26	10	**579**	5	21	1	5.00	1.00	2.55	1.00
27	10	**614**	6	23	1	5.00	1.00	2.40	0.94
28	10	**580**	5	21	1	3.00	0.60	1.95	0.76
29	11	**720**	6	24	1	2.00	0.67	1.60	0.71
30	11	**660**	6	28	1	1.00	0.33	0.80	0.35
31	11	**735**	6	24	1	3.00	1.00	2.27	1.00
32	12	**807**	6	26	1	2.00	1.00	1.47	1.00
33	12	**809**	6	26	1	1.00	0.50	0.80	0.55
34	12	**850**	0	0	1	0.00		0.00	
35	13	**876**	7	29	1	1.00	0.33	0.83	0.50
36	13	**926**	7	33	1	3.00	1.00	0.83	0.50
37	13	**870**	7	31	1	2.00	0.67	1.67	1.00
38	14	**963**	8	37	1	3.00	1.00	2.05	1.00
39	14	**994**	8	35	1	3.00	1.00	2.05	1.00
40	14	**960**	8	37	1	1.00	0.33	0.71	0.35
41	15	**1016**	9	39	1	4.00	1.00	1.42	1.00
42	15	**1028**	0	0	1	0.00		0.00	
43	15	**1032**	9	39	1	1.00	0.25	0.75	0.53
44	16	**1080**	11	46	1	2.00	1.00	1.20	1.00
45	16	**1054**	10	47	1	1.00	0.50	0.00	
46	16	**1042**	10	41	1	2.00	1.00	0.67	0.56
47	17	**1083**	9	39	1	3.00	1.00	2.21	1.00
48	17	**1095**	10	47	1	2.00	0.67	1.41	0.64
49	17	**1096**	9	40	1	3.00	1.00	2.21	1.00
50	18	**1116**	12	44	1	1.00	0.25	0.73	0.22
51	18	**1118**	10	47	1	4.00	1.00	3.38	1.00
52	18	**1113**	10	47	1	2.00	0.50	1.78	0.53
53	19	**1130**	10	47	1	3.00	0.60	2.55	1.00
54	19	**1138**	11	51	1	5.00	1.00	1.65	0.65
55	19	**1133**	11	51	1	3.00	0.60	2.55	1.00
56	20	**1160**	10	47	1	2.00	0.67	1.82	1.00
57	20	**1150**	13	50	1	1.00	0.33	0.75	0.41
58	20	**1152**	12	61	1	3.00	1.00	0.00	
59	21	**1167**	11	56	1	2.00	1.00	1.72	1.00
60	21	**1166**	14	57	1	1.00	0.50	0.69	0.40
61	21	**1168**	11	53	1	2.00	1.00	1.54	0.90
62	22	**1178**	13	65	1	4.00	1.00	0.77	0.45
63	22	**1177**	11	56	1	3.00	0.75	1.71	1.00
64	22	**1181**	0	0	1	0.00		0.00	
65	23	**1195**	12	63	1	1.00	1.00	0.91	1.00
66	23	**1194**	0	0	1	0.00		0.00	
67	23	**1198**	12	59	1	1.00	1.00	0.91	1.00
68	24	**1209**	13	67	1	4.00	1.00	1.67	0.99
69	24	**1208**	12	63	1	3.00	0.75	1.68	1.00
70	24	**1206**	13	65	1	2.00	0.50	0.83	0.50
71	25	**1216**	13	69	1	2.00	1.00	1.76	1.00
72	25	**1222**	13	69	1	2.00	1.00	1.76	1.00
73	25	**1215**	13	69	1	2.00	1.00	1.76	1.00
74	26	**1232**	0	0	1	0.00	0.00	0.00	0.00

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Table 8.12: Scores for Adjusted Local Prominence from Distance (ALPd)

(Ties Weighted by Distance. ALPd= Local Prominence Adjusted by Distance)

Case no	H-N n	Range1	Range2	Range3	Range4	Range5	SUM	ALPDist
1	1	0	6	0	0	0	6	1.00
2	14	0	6	6	0	0	12	0.86
2	17	1	4	9	0	0	14	1.00
2	3	1	6	0	0	0	7	0.50
3	67	0	0	0	4	0	4	0.44
3	39	0	6	3	0	0	9	1.00
3	47	0	4	3	0	0	7	0.78
4	93	0	0	9	0	0	9	1.00
4	77	0	2	6	0	0	8	0.89
4	75	0	0	3	0	0	3	0.33
5	150	0	6	12	4	0	22	1.00
5	139	0	6	9	0	0	15	0.68
5	98	0	2	6	0	0	8	0.36
6	188	1	8	6	4	0	19	1.00
6	199	1	8	3	0	0	12	0.63
6	200	0	8	3	0	0	11	0.58
7	250	1	2	21	0	0	24	1.00
7	261	1	8	9	0	0	18	0.75
7	281	0	4	15	0	0	19	0.79
8	341	0	8	3	0	0	11	0.52
8	370	0	8	9	4	0	21	1.00
8	358	0	6	3	0	0	9	0.43
9	439	2	14	6	0	0	22	0.81
9	441	2	10	15	0	0	27	1.00
9	438	2	12	9	0	0	23	0.85
10	579	0	10	9	0	0	19	1.00
10	614	1	10	3	0	0	14	0.74
10	580	1	8	3	0	0	12	0.63
11	720	0	2	6	0	0	8	0.57
11	660	0	2	0	0	0	2	0.14
11	735	0	8	6	0	0	14	1.00
12	807	0	2	6	0	0	8	1.00
12	809	0	2	3	0	0	5	0.63
12	850	0	2	0	0	0	2	0.25
13	876	0	2	3	0	0	5	0.50
13	926	0	10	0	0	0	10	1.00
13	870	0	6	3	0	0	9	0.90
14	963	1	6	0	0	0	7	0.47
14	994	1	10	0	4	0	15	1.00
14	960	2	2	0	4	0	8	0.53
15	1016	2	6	0	0	0	8	1.00
15	1028	1	2	0	0	0	3	0.38
15	1032	1	4	0	0	0	5	0.63
16	1060	2	6	3	0	0	11	1.00
16	1054	1	6	0	0	0	7	0.64
16	1042	1	6	0	0	0	7	0.64
17	1083	1	10	3	8	0	22	1.00
17	1095	1	4	0	0	0	5	0.23
17	1096	0	8	0	4	0	12	0.55
18	1116	0	6	6	0	0	12	0.92
18	1118	1	12	0	0	0	13	1.00
18	1113	1	8	0	0	0	9	0.69
19	1130	0	6	6	0	0	12	0.86
19	1138	0	8	6	0	0	14	1.00
19	1133	0	6	3	0	0	9	0.64
20	1160	0	6	3	4	0	13	1.00
20	1150	0	2	6	0	0	8	0.62
20	1152	0	6	0	0	0	6	0.46
21	1167	0	4	9	0	0	13	1.00
21	1166	1	6	3	0	0	10	0.77
21	1168	1	2	3	0	0	6	0.46
22	1178	1	4	6	0	0	11	1.00
22	1177	1	4	6	0	0	11	1.00
22	1181	2	0	6	0	0	8	0.73
23	1195	0	8	0	0	0	8	1.00
23	1194	0	6	0	0	0	6	0.75
23	1198	0	2	3	0	0	5	0.63
24	1209	0	12	3	0	0	15	1.00
24	1208	0	6	9	0	0	15	1.00
24	1206	0	4	0	0	0	4	0.27
25	1216	0	4	0	0	0	4	1.00
25	1222	0	4	0	0	0	4	1.00
25	1215	0	4	0	0	0	4	1.00
26	1232	0	0	0	0	0	0	

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Chapter 9

Conclusion

SPEECH AND ACTION CONJOINED ON THE DIACHRONIC AXIS

This concluding chapter, first, revisits the works of Mullins, Zuckerman and Collins on scholarly networks. Second, it discusses the limitations of the present study and the future projects inspired by them. Finally, it explore the broader implications of my findings on diachronic and synchronic networks and social organizations in general.

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In this study, I highlighted the problems triggered by the gap between discursive and social structures on the one hand, and synchronic and diachronic structures on the other. I also showed the advantages afforded by bridging these gaps on the conceptual and methodological levels. Structuralism cannot deliver what it promises without bridging these gaps, which strip off speech and time from social action and thus ignore temporal and discursive constraints on it. Social action, however, is certainly bound to fail if it does not take temporal and discursive constraints into consideration.

The image of structure suggested by Saussure, whose work served as the fountainhead of structuralism since the beginning of this century, can be summarized by the interaction of two axis, micro and macro, and diachronic and synchronic (See above Figure 2.2 and Figure 5.4). Almost a century has passed since Saussure; yet, his project has only been partially realized despite the popularity it has enjoyed in the intellectual and academic circles. This is because notwithstanding the extensive attention paid to the macro and micro link in social theory, the time axis that Saussure used to differentiate between diachronic and synchronic relations has yet to be fully explored.

Saussure's approach was also very much sensitive to the uninterrupted synergy between discursive and social structures. At that time, he even considered putting linguistics under the newly emerging sociology. Yet, later developments in social and human sciences did not take into account this strong relationship. The results were images of narrative without social organization, and images of social actor without speech.

In the first phase of social theory in the modern era, the founding fathers of sociology took language as an epiphenomenon, and left it aside in the images of social

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actor, relation and structures they variably constructed. The only exception was Marx who gave language a peripheral place in his social theory. In the next phase, however, both human and social scientists discovered the importance of language. However, in this phase also, language remained subordinate to the social, which was considered to be the real world. The third phase, which we are in now, however, increasingly gives equal importance to language and action in the construction of social relations and structures. The third phase has become possible with the rise of a constitutive approach to language as opposed to the traditional referential approach that was commonly shared both by human and social sciences. Adopting a constitutive approach to language implies a sweeping rapprochement of our concepts and methods in social and human sciences.

From this perspective, bringing language back in, or "linguistification" of social theory as Habermas puts it (1989: II, 2), can happen by coupling the long isolated discursive and social structures through a reciprocal or circular model. An increasing number of scholars from various disciplines have adopted such an approach. Besides Habermas, striking examples include Harrison White, Tilly, Shotter, Silverstein, and Lucy. To the oblivion of their predecessors, these scholars responded to language by paying it due respect.

Moreover, there are other advances in the study of discursive patterns as our understanding of talk evolves. Language is no longer seen operating only on one plane. Instead, as Silverstein maps it out, there are several planes overlaid upon each other, namely language and metalanguage, pragmatics and metapragmatics. Plainly put, there is talk, and there is talk about talk. The former is termed as object language, while the latter is referred to as metalanguage, or reflexive speech. Studies on reflexive language show

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how language continuously acts and reacts on itself, which bear directly on social action and relations. Patterns in the use of reported speech provide an excellent example for this. In line with Silverstein, Harrison White also depicts a dynamic and a multi-layered image of language use and shows how we continuously and reflexively revise our stories and accounts in everyday social relations.

In the remainder of this chapter, I will do three things. First, I will display evidence for the argument developed here from modern academia as well as other major civilizations of the world using the work of Mullins and Zuckerman, and Collins. Second, I will elucidate how the cross-temporal analysis might bear upon synchronic network analysis. Finally, I will discuss the possibility of applying the interpretive perspective developed here in other social networks. The last two sections will display the way this research contributes to the ongoing broader debates in sociology.

A Revisit to Mullins, Zuckerman and Collins

My argument of the role of diachronic relations in the formation of authority is also substantiated empirically by the data Mullins, Zuckerman and Collins collected concerning prominent scholars. Mullins collected data on the network of prominent social scientists (see especially Figure 3.1 on page 42[1]) whereas Zuckerman gathered data

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[1] Figure 3.1 in Mullins book focuses on the linkages among some persons important to the development of standard American sociology from 1900 to 1950. Applying the perspective I suggest here, it is possible to reconstruct the data as a time-stratified network and analyze the connections between seven layers of sociologists. From this perspective, I reconstructed the Mullins data and looked at the inter-layer connections.

Layer 1: Simmel, Durkheim, Pareto and Weber.
Layer 2: Mead, Park, Small, Giddings, and Salin.
Layer 3: Burges, Ogburn, Henderson, L. J. and Sorokin.

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on the network of Nobel Prize winners (see especially Figures 4-1, 4-2, and 4-3[2]). Collins collected data about the most prominent philosophers in the major civilizations of the world from Japan to India, to Islam and to Europe[3]. These data also show extensive out-layer/cohort connections parallel to the patterns displayed by the hadith transmission network. Likewise, all three authors, deriving data from different fields and time frames, stress that in order to become a prominent scholar one has to become a student of one.

However, all three authors stress only the existence of a connection without giving due attention to cohort differences and to the gap in the ratio of in-layer and out-layer ties. True, prominent scholars were the students of other prominent scholars—which is only a partial explanation of the phenomenon, but I should also add that they were not students of scholars from the same generation. This observation shows the role of diachronic connections in generating and regenerating authority in the ancient and modern scholarly communities across the world. However, all three authors miss that

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Layer 4: Blumer, Hauser, P., Staufer, Homans, and Parsons.
Layer 5: Hawley, Duncan, Merton, and Davis.
Layer 6: Schnore, Scott, Van der Berghe, Blau, and Ryder.

The most striking pattern in this network, as displayed by the Figure 3.1, is the prevalent role of the diachronic or out-layer connections because none of these figures is a student of another one from their own cohort. Ties are dominantly diachronic.

[2] Zuckerman's data can also be reconstructed and analyzed as a time-stratified network. She mapped the network of masters and apprentices in layers. She organized her data in eight layers on Physics and Physical Chemistry from 1880 to 1959, and five layers on Biological Chemistry from 1901 to 1972. All ties are diachronic. No in-layer connection in either network is reported; instead, all connections are among scholars from different layers, which provides additional evidence from the modern day scholarly community on the role of inter-layer brokerage in the formation of scholarly authority.

[3] Of all three authors mentioned above, Collins did the most comprehensive data collection. His data can also be better organized and formally analyzed employing the concept of layer. Collins has already divided his data into different periods, but without exploring its methodological foundations. Nor did he pay special attention to the striking contrast in the volume of connections between and within these generations. Furthermore, the volume of in-layer connections among intellectuals is strikingly insignificant in all cultures Collins analyzed. Collins' findings on the network of philosophers in different societies also shows striking parallels with the network of the huffaz in Islamic culture.

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feature because of their exclusive dependence on the synchronic approach to the network they study which operates only on the cross-sectional plane, not the cross-temporal.

Limitations of the Present Work and Proposals for Future Research

Above, I have discussed how Saussure's image of structure gave due, but long ignored, importance to the temporal dimension of social action. Yet, one important dimension is still missing in this image of structure, namely the space dimension. In addition to synchronic (Saussure 101-139) and diachronic structures (Saussure 140-190), Saussure also stressed the importance of structures emanating from geography (Saussure 191-211). However, subsequent structuralist query in social sciences, except for geography, has not pursued this seriously, and has yet to develop methods of displaying the interaction of time and space in the operation of social systems. The GIS (Geographic Information Systems) is a new and fast developing field that combines social scientific and geographic data and methods with the most recent computer technology[4].

This limitation is also reflected in my work here. At times, I also had to put the space dimension aside so as to completely concentrate on the temporal dimension. Bulliet's work presents an excellent example of how to trace the developments on both axes, although in a very limited scope. As he analyzed the network of hadith scholars in one city, Nishapur, the space variable remains stable in his work. In my data, which

[4] Presently, it is possible to make analysis about geographic distribution of social variables for the USA, but similar software and detailed data has yet to be produced for the rest of the world. Collection and analysis of what is called GEODATA has recently become a standard part of social research. Analysis of hadith transmission network can also benefit from this development in the near future.

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represent a polycentric network structure, however, I briefly described how the centers shifted across time[5].

The present research analyzed further how social ties are anchored not only in time but also in social (Chapter 8) and geographical (Chapter 2) space, without any claim to be exhaustive. Narrative travels and disseminates in timespace through networks following certain patterns, thereby giving rise to social structures. In the present work, I concentrated on some of these structures emerging from time, leaving further discovery of spatial patterns for future research. For instance, mapping out the network on the vast geography of Islam over centuries would demonstrate the international routes of narrative from Spain to Central Asia, which would probably overlap with the trade routes of those ages, in particular silk and spice routes (Abu-Lughod 1989, Eickelman and Piscatori 1990). In this connection, the role of pilgrimage to Mecca and the cities that served as stations on the way must also have played an important role (Gellens 1990: 50-65). These issues that I tangentially touched on in this research can be fully explored in a future study.

The focus of this work, limited to the most prominent scholars, the huffaz[6], needs to be expanded in the future to include the less prominent scholars, the *muhaddithun*, and

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[5] In general, however, I had to put aside space variables in favor of time variables, not because I think they are subordinate to them, but because of the limitations of the present work. In this research I paid attention to the geography as well (See Chapter 2). I showed that the center of the social networks continuously move over time between centers of learning without stability, which paints a polycentric network with moving centers rather than a network with a single and stable center. Table 2.3 above displays how the centers of hadith transmission network shifted over time. Yet, this analysis about the geographic aspect of the phenomenon is far from being exhaustive.

[6] I should also note that the list of huffaz in Dhahabi's work is far form being complete and precise. Ma'ruf who authored a monograph on Dhahabi wrote: "al-Dhahabi did not mean to cover all the 'the huffaz' in this book. He apologized for this in several places of his book. At the end of the second layer,

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those who were stigmatized as liars, as well. For instance, the grand dictionary of Dhahabi, *History of Islam,* and his specialized dictionary on the fictive narrators, or story tellers, *Register of the Weak and the Abandoned,* provide information about different strata of narrators over an extended period of history. This would help us determine the social conditions that played an important role in forgery, and the conflict between fictive and historical modes of narrative.

Furthermore, the network of hadith scholars that I reconstructed here needs to be confounded with the actual chains of authorities, *isnad,* and texts of narrative, *matn.* My initial exploration showed that, in Bukhari's *Sahih,* among 1528 transmitters (Kalabazi[7]) featuring 7563 *isnad* trees (Bukhari), there are 430 huffaz, 28 % of the total population. Yet, we still do not know how big a role they played in the transmission of hadith, which can be determined by analyzing the frequency of instances their names occur in the actual *isnad* trees. The analysis of the network can further be linked to the content analysis of the texts to determine if there are recurring patterns.

The conflict between Shiite and Sunni branches of Islam is reflected in the network of narrators of hadith as well as their respective metanarratives. In this study, the data are derived from Sunni sources. Yet, it seems the authors (Dhahabi, Suyuti) paid limited attention to school differences between scholars because they also included many well-known Shiite scholars. The division between Sunni and Shiite School in Islam

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he wrote: 'I restricted myself to the presentation of this seventy and some leading scholars (imam) with the purpose of making it easy for the readers (I:244).' He also said at the end of the seventh layer: 'They are many in numbers but I selected only the most prominent (al-A'laam) (I:329, see also II:529-530, VI:1500)." He referred his readers who want more detailed information to his grand historical work, *History of Islam* (see for instance II: 627, IV:1466) and his autobiographical dictionary (see for instance IV:1500). He also mentioned that he presented only limited information about them in this book (I:160).

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emerged towards the end of the first century and gradually crystallized later. Prior to this division, there had been only one network, but after the conflict took roots in the society, the network of scholars from different schools of thought also began differentiating (Kohlberg 1983). However, the prominent hadith scholars, such as Bukhari, took hadith from the scholars who did not belong to the same school of thought as they. Thus, we find many scholars, who are today considered Shiite, such as Ja'far al-Sadiq, the founder of Jafari school, included by Dhahabi as huffaz in his biographical dictionary despite the school difference.

Is the Idea of Synchronic Structure an Illusion?

Is the idea of synchronic structure an illusion? Yes, says Saussure. Yet, paradoxically he argues that it is a profitable and necessary one. Social actors are unaware of temporal order although they are embedded in it. The scholar who wants to understand their perspective must also adopt it and bracket his awareness of time. Saussure writes,

> The first thing which strikes one on studying linguistic facts is that the language user is unaware of their succession in time: he is dealing with a state. Hence the linguist who wishes to understand this state must rule out of consideration everything which brought that state about, and pay no attention to diachronic (Saussure 1994: 81).

Temporal structure is about succession in time of sounds, letters, words, sentences, actions, actors, relations, and events, from the most miniscule micro to the

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[7] Kalabazi lists 1225 names as Bukhari's transmitters, yet 3 names are missing in the list.

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most gigantic macro level. Succession is also called an event[8]. Each level has its own time. What is diachronic at one level can be treated as a synchronic fact at another level. What is diachronic for phonetics and morphology, succession of sounds, is synchronic for syntax. What is synchronic for syntax, succession of words, is synchronic for Narratology.

Saussure mistakenly (1) identifies diachronic laws with evolution because he applies diachronic perspective only to the macro level and (2) confuses succession in time with succession in space, more precisely on paper in writing[9]. He uses the following statements as examples for synchronic laws (Saussure 1994: 91. Italics are mine):

> 2. Stress never falls on a syllable ***preceding*** the untipenultimate syllable of a word.
> 3. All words ***end*** either in a vowel or in *–s, -n, -r;* but no other consonant

As the italicized words (‘**preceding**’ in law 2, and ‘**end**’ in law 3) show, these laws are also about time. The coexistence of words on paper when we read them might leave a misperception that they coexist[10]. In contrast, as the event of speech makes it clear, the sounds succeed each other in an orderly manner. Similarly, if we are operating on a macro level, the succession of elements on a micro level will appear synchronic to

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[8] Saussure writes, “One [synchronic fact] is a relationship between simultaneous elements, and the other [diachronic fact] a substitution of one element for another in time, that is to say an event” (Saussure 1994: 90).

[9] This is a clear example of how succession in time is conflated to succession in space.

[10] Succession in time must be treated differently from succession in space although there might be commonalties between them (Hill, Fillmore 1975).

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us. These laws are synchronic only if we are looking at them from the level of 'language' but not 'speech'.

Studying discursive and social structures by ignoring temporal constraints is called synchronic analysis, which was first suggested by Saussure. This perspective has been highly prominent and still is the most prevalent approach in the social and human sciences. Yet, the concept needs a critical examination. In conclusion to this study about diachronic structures, I want to approach the concept critically and question the idea of synchronic structure in discursive and social spheres.

Speech is not and cannot be synchronic because it does not take place at once. This can be observed on both macro and micro levels. Its nature requires that speech take place sequentially piece by piece, otherwise nothing will be discrete enough to be comprehended. The sounds also have to be sequentially transmitted to the listeners in order for them to be able to understand. Otherwise, if we transmit the sounds to the audience at once, they will hear a short noise, but not a speech.

In a discourse whether it be written or verbal, letters, words, and sentences are sequentially ordered in time. A speech without such an order would be a 'word salad.' In a conversation, for instance, the speeches of different interlocutors are also sequentially ordered in time. In brief, the elements of speech as well as the speeches themselves *vis a vis* each other, are temporally positioned and ordered. How is this fundamental feature reflected in our study of speech and narrative? Both the elements of speech and conversation are temporally structured on the diachronic axis but not on the synchronic axis. Speakers and interlocutors must abide by the unwritten constitution of this invisible temporal order of speech. Otherwise, they will certainly feel its punitive

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force that might range from feeling ashamed to getting expelled from a group or even stigmatized as insane.

The temporal structure of speech is more evident in reflexive speech. In this case, the speech a person is reporting must have occurred before he speaks. It is impossible for a person to report something that happens at the same time or later than the time of his speech. The speech that becomes the subject of another speech must precede it. Otherwise, how would it be possible to reflect on it? (Talk about prophecy constitutes a different realm.)

From this point of view, linguistics is primarily about this temporal order. How are the syllables ordered? How are the words ordered? And how are the sentences ordered? These are the questions linguistics deals with. Finally, on a macro level, how are the elements of a narrative ordered? This is the question narratology deals with. From morphology to syntax and to narratology, the underlying preoccupation of these disciplines is to determine the sequential structure of speech on the diachronic axis for different levels of analysis. For instance, syntax tells us the order of words in time because when we speak their occurrence in time cannot be random, or disorderly. Each element of a sentence, teaches us syntax, has a fixed place in time that must be respected by the speakers (Hill, Fillmore, Labov).

The observation and questions I highlighted above on the discursive action apply to a great extent to social actions as well. Temporal structure of social relations poses constraints on social actors. Yet, social actors are not for the most part aware of the temporal constraints. (This unawareness might be true for the scholars who study social behavior as well.) Even if everything else is ripe, if the temporal constraints exist, social

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action is inhibited. For instance, we can do only one or a limited number of compatible things at a time. Our actions must coherently be put in sequential order. Also, we have to be sensitive to the temporal order required by nature, culture and morality in our actions. Otherwise, they are bound to fail. Therefore, social analysis must take into account the temporal constraints that social actors face in their relations.

Sociologists increasingly realize the necessity to come to terms with temporal constraints, which have been completely ignored by the linear causal models. White's work on the *Chains of Opportunity* first highlighted temporal constraints using the vacancy chain model (1970). Abbot contrasts between "Causal and Narrative Approaches," in sociology. His efforts have been focused on developing methods that can count for diachronic structures in social process (1990) (See also Abbott 1984, 1988, Abbott and Hrycak 1990,1992a, 1992b,1995). Unlike Saussure who advocated simultaneous usage of diachronic and synchronic methods, Abbott concentrates on the 'narrative' approach to social process as an alternative to the prevailing causal approach.

In this connection, one should also consider the case of historical sociology. One might expect that historical sociology employs diachronic methods. Still, the scholars who specialize in historical sociology do not make use of the distinction between synchronic and diachronic methods. The common practice today in historical sociology is to conflate the diachronic process to synchronic laws on the model of natural sciences with the purpose of discovering generally applicable laws. From this perspective, time finds its way to the analyses only as a variable in the causal process.

In sum, we are allowed to do synchronic analysis only if we are aware of what we have to sacrifice in the process. Synchronic analysis suppresses time with the purpose of

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facilitating certain types of analyses; yet, both the researchers and the audience need to be informed about the partial understanding they can gain through such analyses. My emphasis on the temporal order should by no means be seen as reification of time. The best strategy I have suggested throughout this work for the future is to close the gap between synchronic and diachronic perspectives on social and discursive structures.

Closing the Loop Back to Synchronic Structures

In the foregoing analysis, I have brought the role of long ignored diachronic (cross-temporal) networks to the foreground along with synchronic (cross-sectional) networks. I have used both concepts simultaneously and alternated continuously from one to another depending on the analysis.

It is possible to bring my findings from the analysis of time-stratified organizations to bear also on other types of hierarchical social organizations in general. This is because, as I have emphasized many times, social stratification does not derive only from time but from a myriad of social and cultural factors as well. It is quite plausible, then, to read the concept of layer, which I have employed in this study to distinguish the social strata differentiated from each other by virtue of time, as the strata differentiated by virtue of other factors as well. Hence, within the context of crossectional networks, inter-layer brokerage can also be used to refer to the vertical ties between layers of superiors and subordinates.

My findings on the macro and micro levels from the analysis of the network of the huffaz suggest that social authority come from extensive external ties. Paradoxically, prominent groups are not so closely connected to each other but rather are densely

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connected to other groups. Consequently, the power of a group springs from the openness of their network but not from its closure. Prominent groups are not closely-knit among themselves alone; rather they are extremely open to the outside world. In other words, social power of individual or corporate social actors comes from outward connections but not from inward connections. Consequently, the extent to which an individual or a group is connected to outside groups determines their social prominence.

The opportunities and constraints offered by network closure and openness have been a center of attention to sociologists. Coleman draws our attention to the opportunities offered by network closure (Coleman 1990, 1994) whereas Burt stresses openness and claims that "competitive advantage is a matter of access to holes" between networks (Burt 1995). Coleman argues that network closure is a main source of social capital, which he defines as "a resource for action" such as obligations and expectations, information channels and social norms (Coleman 1994: S95). For him, network closure facilitates two forms of social capital: obligations-expectations and norms. Coleman argues that without network closure the diamond market in New York City could not function so easily due to the lack of trust[11] and norms, which are produced by network closure (Coleman 1994, See also Coleman 1990: 318-320).

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[11] Coleman's argument is illustrated in the following excerpt. "Inspection shows certain attributes of the social structure. A given merchant community is ordinarily very close, both in frequency of interaction and in ethnic and family ties. The wholesale diamond market in New York City, for example, is Jewish, with a high degree of intermarriage, living in the same community in Brooklyn, and going to the same synagogues. It is essentially a closed community. Observation of the wholesale diamond market indicates that these close ties, through family, community, and religious affiliation, provide the insurance that is necessary to facilitate transactions in the market. If any member of this community defected through substituting other stones or through stealing stones in his temporary possession, he would lose family, religious, and community ties (Coleman 1994: S99).

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Unlike Coleman who focuses on the internal structure of the group in the creation of social capital, Burt focuses on the network environment. For Burt, the internal structure of the network is determined through relations in the network environment in which social actors as well as their network are embedded. He writes,

> To explain variation in competitive success, I look beyond the competitors themselves to the circumstances of the relations for which they compete. The terrain on which competition plays out lies beyond the competitors themselves. It lies in their efforts to negotiate relations with other players. When those relations are positioned in social structure such that there is little room to negotiate, the margin between success and failure is slim. The social structure of competition is about the negotiability of the relationships on which competitors survive (Burt 1995: 5).

Burt argues that internal stratification of a group and the result of internal competition is contingent upon the relations between networks, rather than the internal dynamics of the network under investigation. Success depends on eliminating redundant ties to people with similar resources and exploiting holes between networks[12]. In the following excerpt, Burt elucidates the opportunities offered by the connections to outside groups to which access is limited.

> Network benefits are enhanced in several ways. There is a higher volume of benefits, because more contacts are included in the network. Beyond volume, diversity enhances the quality of benefits. Nonredundant contacts ensure exposure to diverse sources of information. Each cluster of contacts is an independent source of information. One cluster, no matter how numerous its members, is only one source of information, because

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[12] "I use the term structural hole for the separation between nonredundant contacts. Nonredundant contacts are connected by a structural hole. A structural hole is a relationship of nonredundancy between two contacts. The hole is a buffer, like an insulator in an electric circuit. As a result of the hole between them, the two contacts provide network benefits that are in some degree additive rather than overlapping (Burt 1995: 18)."

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> people connected to one another tend to know about the same things at the same time. The information screen provided by multiple clusters of contacts is broader, providing better assurance that you, the player, will be informed of opportunities and impending disasters. Further, because nonredundant contacts are only linked through the central player, you are assured of being the first to see new opportunities created by needs in one group that could be served by skills in another group. You become the person who first brings people together, which gives you the opportunity to coordinate their activities. These benefits are compounded by the fact that having a network contact to other people, thus easing your task of expanding the network to best serve your interests (Burt 1995: 23).

The contrast between the degree of openness and closure of the network can also shed light on another aspect of an intellectual community. More concretely, it might help us understand the rise of scholasticism and dogmatism. An intellectual network that is wide open horizontally/synchronically (to other coexisting networks) and vertically/diachronically (to the networks of previous and succeeding generations) can hardly fall prey to scholasticism and dogmatism. In contrast, if an intellectual network is closed to horizontal and vertical relations, it might be easily led to dogmatism[13].

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[13] Ibn Khaldun explains how "a Scholar's education is greatly improved by traveling in quest of knowledge and meeting the authoritative teachers (of his time)." The following excerpt shows a high degree of awareness about keeping intellectual networks open by meeting an extended number of teachers even if it requires travelling abroad. Yet, we do not know to what extent this awareness was preserved by the subsequent generations of Muslim intellectuals. Ibn Khaldun writes,

> The reason for this is that human beings obtain their knowledge and character qualities and all their opinions and virtues either through study, instruction, and lectures, or through imitation of a teacher and personal contact with him. The only difference here is that habits acquired through personal contact with a teacher are more strongly and firmly rooted. Thus, the greater the number of authoritative teachers (*shaykhs*), the more deeply rooted is the habit one acquires.
>
> Furthermore, the technical terminologies used in scientific instruction are confusing to the student. Many students even suppose them to be part of a given science. The only way to deliver them from that (wrong notion) is by personal contact with teachers, for different teachers employ different terminologies. Thus, meeting scholars and having many authoritative teachers (*shaykhs*) enables the student to notice the difference in the terminologies used by different teachers and to distinguish among them. He will thus be able to recognize the science itself behind the (technical terminology it uses.) He will realize that (terminologies) are (merely) means

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Furthermore, these groups might be differentiated from each other by virtue of time or other social and cultural reasons. In this study, I focused on the interrelations among groups that are differentiated from each other, and stratified, by virtue of being located in different time periods, which directly bear upon network configuration and patterns of talk within and between them.

I have shown how synchronic network analysis could also be applied to diachronic structures. Here, I will close the loop by tying the argument back to the synchronic network analysis because I believe my findings concerning diachronic networks also bear upon synchronic network structures derived from cross-sectional data. According to this study, a layer of prominent scholars is thinly connected to itself while it is thickly connected to the past and future layers of prominent scholars. This particular network configuration survives the test of time as we have observed it in the hadith transmission network, among prominent scholars over almost a millennium from the 7th to the 16th century, covering a wide terrain from the steps of Central Asia to the gardens of Spain.

Yet, this structure is not one that is envisaged by the scholars who are embedded in it; it is an unintended outcome of an implicit discursive process. Namely, it is the metalanguage that inadvertently and out of sight shapes the configuration of networks of

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and methods for imparting (knowledge). His powers will work toward acquiring strongly and firmly rooted habits. He will improve the knowledge he has and be able to distinguish it from other (knowledge). In addition, his habits will be strengthened through his intensive personal contact with teachers when they are many and of various types. This is for those for whom God facilitated the ways of scholarship and right guidance. Thus, travelling in quest of knowledge is absolutely necessary for the acquisition of useful knowledge and perfection through meeting authoritative teachers (*shaykhs*) and having contact with (scholarly) personalities (Ibn Khaldun 307-308).

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narrative. The constant effort of social actors to reduce the levels of reported speech (LRS) by trying to report the speech from the closest person to the original source configures social networks, though unknowingly and unintentionally. The effect of the levels of reported speech reduces inward connections and increases outward connections, thereby producing inter-layer, or inter-strata brokerage. The former, reducing the levels of reported speech *via* inter-layer brokerage, is applicable to crosstemporal networks, and the latter, reducing the levels of reported speech *via* inter-strata brokerage, is applicable to crosssectional networks. A circular causality is at work here between literary and social processes that simultaneously and continuously interact with each other.

Generally speaking, in a social organization, authority can be perceived as an outcome of vertical ties to social actors above and below in the hierarchy, whether it is a hierarchy created by time or by another factor. In-layer connections, therefore, play, if at all, an insignificant role compared to the inter-layer connections in the overall social and literary processes. In contrast to the vertical ties, horizontal connections to the peers have either a negative or an insignificant impact on authority formation. On the macro level, aggregate/corporate social actors gain prominence as a cluster not by staying close only to each other but by giving priority to external network connections. Consequently, a layer of prominent actors in a social organization will be thinly connected to their own layer while they will be thickly connected to layers above and below.

Is Social Organization also a Discourse Network?

This study reconstructed and analyzed a social network through time as a discourse network in which information flowed through speech and reflexive speech with

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authorities emerging from the reciprocal interaction of discursive and social relations. The same approach, I believe, is applicable to all social organizations in general, be they historical or contemporary (Kittler 1990). Yet, the methods I used here might need to be modified to allow such a replication within the context of a particular social organization under investigation. It will be less challenging to apply it to the networks that develop around a particular narrative such as science with its numerous branches, religion, and communication networks. However, application of this approach to other social organizations such as markets, states, families, gangs, sport teams, and the like might be more challenging. The difficulty comes from the fact that the effect of discourse is equally sweeping and elusive.

Certain features of the data used in this study favored the reconstruction of a social network as a discourse network, which might not exist in other cases. In this research, I have analyzed the structure of a discourse network in which the currency was the pieces of narrative transmitted from one generation to another. The rather formalized protocols of narration and the particular emphasis on recording the network connections of teachers and students in the culture of hadith scholars made it feasible for me to reconstruct and to analyze this monumental social network as a discourse network. Replication of this analysis in other contexts also will require collecting data on both social and discursive relations.

As a futher step, the data collected on the social and discursive relations in a social organization need to be organically connected to each other. I used metalanguage as a bridge between discourse and social network. The metalinguistic patterns, as I have demonstrated above, provide helpful tools in showing the connection between network

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and discourse. If researchers concentrate only on the use of object language, which is what social actors say about things around themselves, it will be difficult to reveal the social connections among them. However, if researchers concentrate on metalanguage, that is the way social actors talk about other talk, especially by others, it will be easier for them to capture and to analyze the intertwining patterns in the discursive and social relations.

Discourse networks are where discursive action is. Is it possible to imagine a social organization without speech? If no, then we need to revise the Crusoe or Adam like image of the 'speechless' social actor we received from classical social theory. For this purpose, the gap between social and literary structuralism needs to be bridged, and the long uncoupled social and discursive patterns need to be coupled. Neither social nor human scientists can any longer deny the synergy between discursive and social patterns that jointly construct social structure.

Conclusion

In this study, I unearthed the elusive social and discursive mechanisms that produce and reproduce social inequality in a discourse community. A diminutive segment of the social group controls the movement of narrative, owing to their position in the social network. Yet paradoxically, those who constitute this minute group avoid each other. This is because not only are they competitors, but more importantly they are in a constant attempt to reduce the levels of reported speech and eliminate discourse mediators. Regardless of the accuracy of the citation, peers try to take the narrative from the same source from which their competitors take it rather than taking it from their

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friends, thereby remaining independent of the competitors and reducing the levels of reported speech. Eliminating discourse mediators empowers narrators and reduces the levels of reported speech. Therefore, the narrator with the minimum levels of reported speech stands out among his competitors in the narrative social structure. He gains social status and centrality in the network and becomes the most sought after person in the discourse network. So do his students or the ones who took narrative from him because one's patron determines his clients. If one obtains socially authoritative narrative—which is determined for the most part by closeness to the original teller(s), he or she will be the most sought after narrator in the group.

In conclusion, bringing the argument home, one can say that, all of us are narrators. One cannot know how aware we are of the consequences that different narratives might inflict on our social status because of the reflexivity of our language. Yet, we all fortuitously try to reduce the levels of reported speech. In the mean time, our social network spontaneously gains a shape out of sight. On the one hand, our position in the social structure configures the way we talk, and on the other hand, the way we talk re-configures our social position in the structure, mutually fostering each other.

The ceaseless synergy between action and signification is what makes our day to day social life possible. In a recent work, White calls the former "network", and the latter "domain" and argues how the structuralist approach is more equipped to investigate their interrelations without reducing one to another (White 1996). This study empirically substantiated this claim through an analysis of the interaction, on the macro and micro levels, between discursive and social actions as they related to authority formation in the transmission network of the hadith of Prophet Muhammad.

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